ISBE

Solutions for Cutting Tools

Digital Software Solutions

for Cutting Tools

Anniversary Edition

25 JAHRE
YEARS

ISBE Complete solutions for cutting tools

ISBE Mission Statement

„As a long-standing partner of the tool and machining industry, ISBE GmbH is one of the innovation leaders for software-supported drawing, development, simulation, optimization and efficient production of precision tools for drilling, milling, reaming and countersinking.

With practical solutions for efficient workflows and processes, we lead our customers to success. The extensive ISBE portfolio is consistently designed to make all processes associated with tool creation - from communication with the customer to development and production - economical and consistent.

Our customers benefit from maximum productivity with machine-independent, consistently digital, standard and individual solutions from ISBE."

Sincerely,

Dr. Claus Itterheim
- Founder & President ISBE GmbH -

Perspectives

With the development of the GDX interface initiated by ISBE, the basis for maximum data consistency between the systems involved in tool development and production was created. This allows data from software systems to be passed on to tool grinding machines and tool measurement systems and also exchanged with each other.

ISBE solutions create the basis for the development of tools according to the top-down principle.
In contrast to complex tests on the machine, tools can be precisely modeled virtually with ISBE TD WinNut and then analyzed in the FEA machining simulation.

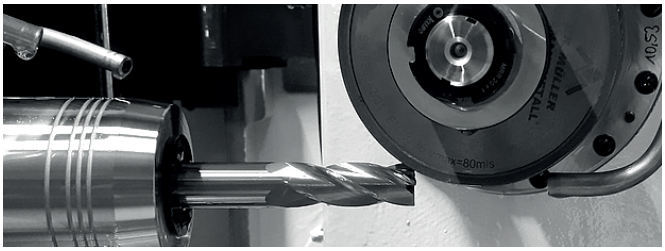
Optimizations are carried out in advance using computers. This allows tools to be developed with completely new, complex geometries that are optimally adapted to the respective application.

Software

ISBE Software ensures that both catalog and special tools can be designed, developed and produced more efficiently. With ISBE software, users can easily and quickly

- Create 2D tool drawings and automatically generate 3D models from them
- Model tools in 3D and use them to generate surface models that can be ground
- Highly productive grinding of cutting tools

Our customers receive integrated software modules from us. The ISBE software range can be expanded at any time according to customer requirements. Machine and control connections for grinding and measuring machines from leading manufacturers complete our product range.



Know How

Numerous manufacturers of cutting tools benefit from our many years of experience and our know-how in the field of cutting.

ISBE GmbH is characterized by close partnerships with its customers. We provide competent advice and support our customers in structuring their processes optimally. Together we ensure a uniform, consistent flow of data from the offer through tool design to tool manufacture.

For individual solutions, the entire ISBE portfolio is available as an excellent starting platform, on the basis of which we can quickly and reliably implement new solutions for our customers‘ new areas of application.

Location

Customer proximity plays a major role for us. The direct exchange with our customers on site is very important to us. Our location in Stuttgart is ideally suited for training courses and seminars. Our modern offices in a convenient location offer enough space and scope for new ideas.

Team

Our team consists of specialists and engineers in the field of developing and manufacturing precision tools. Mathematicians and software developers take care of the sophisticated calculations of our software and our experts with know-how from practice and application ensure the smooth implementation at our customers.

ISBE Milestones

2022
TD Sketcher CAM for 3D design of PCD- or carbide-tipped cutting tools

2020
TD Tool Compare for virtual comparison of two tools as a quality assurance solution

2019
Launch of the **GDX**®-box for digital tool data „Just-in-Sequence“

2018
TD ReCAD interface for Walter Toolstudio

2016
Presentation of the **TD** Converter for conversion of different tool data into DIN and ISO data

2015
Launch of **TD** ReCAD as 3D Re-Engineering solution

2014
Release of the **TD** Sketcher 3D to create drawings and export them according to DIN 4003 / ISO 13399

2011
On the initiative of ISBE, the **VDI** working group “**GDX**®-Interface” starts in November with its first constitutive meeting and in January 2012 with the first working meeting in Stuttgart

2009
Introducing the TD Sketcher for fast and easy creation of cutting tool drawings

2006
First realization of the **GDX**®-Interface

2003
Initiating the development of 3D surface modeling for cutting tools

2001
Release of the TD WinNut for workpiece-, flute- and grinding wheel- modeling in the area of the tool grinding

1997
Foundation of **ISBE** GmbH
Itterheim Softwaretechnik, Beratung & Entwicklung

ISBE Digital networking of the entire process chain

Consistent digital tool data

Increased efficiency by reducing milliseconds when manufacturing a tool is a thing of the past.

With ISBE products, you design your processes with consistent digital tool data. The central focus here is on the internal reusability of production-relevant information.

The data from an offer drawing serves as the basis for subsequent production, but is also available for subsequent quality assurance. Furthermore, this data can be used to create digital twins for the customer.

Tool manufacturers can significantly reduce their development and production times simply by creating a consistency of the tool data.

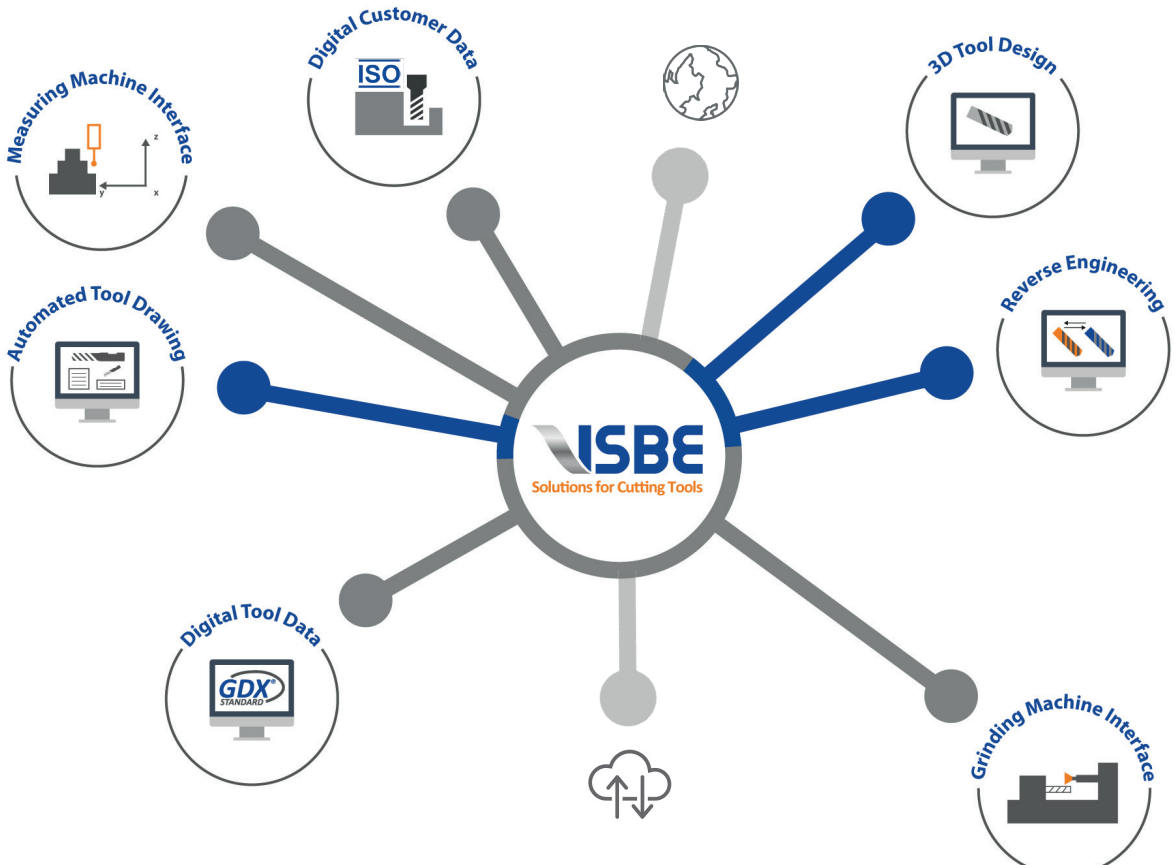
The response time to customer inquiries, which is becoming increasingly important, can be greatly reduced thanks to suitable software. The optimized throughput times in turn favor shorter delivery times. Uneconomical processing of data due to missing interfaces is eliminated.

Intelligently thought-out production cycle

This data can be used in full in the subsequent 3D tool modeling and can then be further processed directly in the tool grinding machine. The programming and feasibility check therefore does not block any machine capacities.

The creation and transfer of all measurement data also takes place in parallel based on the same data set.

At the same time, the created 3D surface model can be used in R&D for an FEA analysis, for example, or with TD Tool Compare in quality assurance.



Graphic:
Typical process chain of a modern, fully digital, networked production.

Intelligently thought-out production cycle with ISBE software

In order to achieve this digitization and consistent use of your data, ISBE provides an extensive portfolio of standard software programs in addition to a large number of customized solutions. These cover the entire digital process chain and are of course compatible with each other.

Intelligently networked software for the entire process chain

- Automated tool design and management of data and data-tables with **TD** Sketcher
- Creation of quotation-, blank- and confirmation-drawings as well as calculation with **TD** Sketcher
- Output of DIN and ISO data for collision calculation, cutting data recommendations with **TD** Sketcher
- Creation of 3D models, grinding simulation and detailed cutting tool geometries with **TD** WinNut
- Design of PCD tools including 3D tool body design with **TD** Sketcher CAM
- Reverse engineering by creating STEP models for FEA with **TD** ReCAD
- Inspection of the geometries via STL comparison for quality assurance with **TD** ToolCompare
- Automatic creation and export of the measurement instruction and transfer with **TD** Sketcher GDX®
- Provision of tool parameters and tool paths for grinding machine via **TD** Sketcher GDX® or **TD** WinNut
- Central, global management of all cutting tool and grinding wheel data with **TD** WinNut

ISBE Portfolio and Program overview

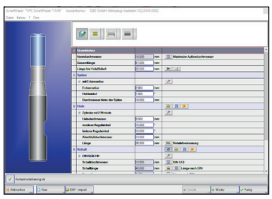
TD Sketcher

Consistently digital tool data from sales to production

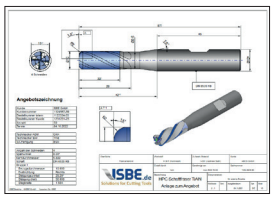
The **TD** Sketcher **IB+** and **XB** is software for designing and planning standard and special tools in 2D and 3D.
You can use it to describe your tool easily in just a few minutes by simple and esay parameter input.
From this data record, you not only generate attractive offer and approval drawings, but also the digital twins for your production and customers.

Advantages

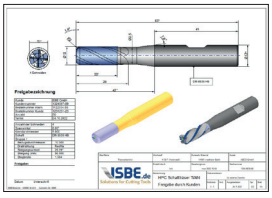
- Generate tool data once, use in many application areas
- Data consistency with GDX® and other NC environments
- Significant time savings of up to 50% compared to CAD
- Increase efficiency through greatly reduced process times



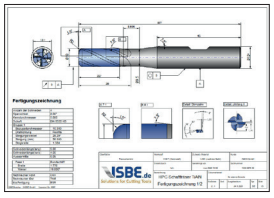
Automated tool design from quotation to production drawing



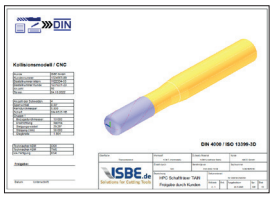
Quotation drawing



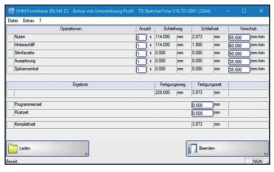
Confirmation drawing



Production drawing



incl. Cut-/No-Cut Model
acc. to DIN 4003 /
ISO 13399-3D



Tool calculation

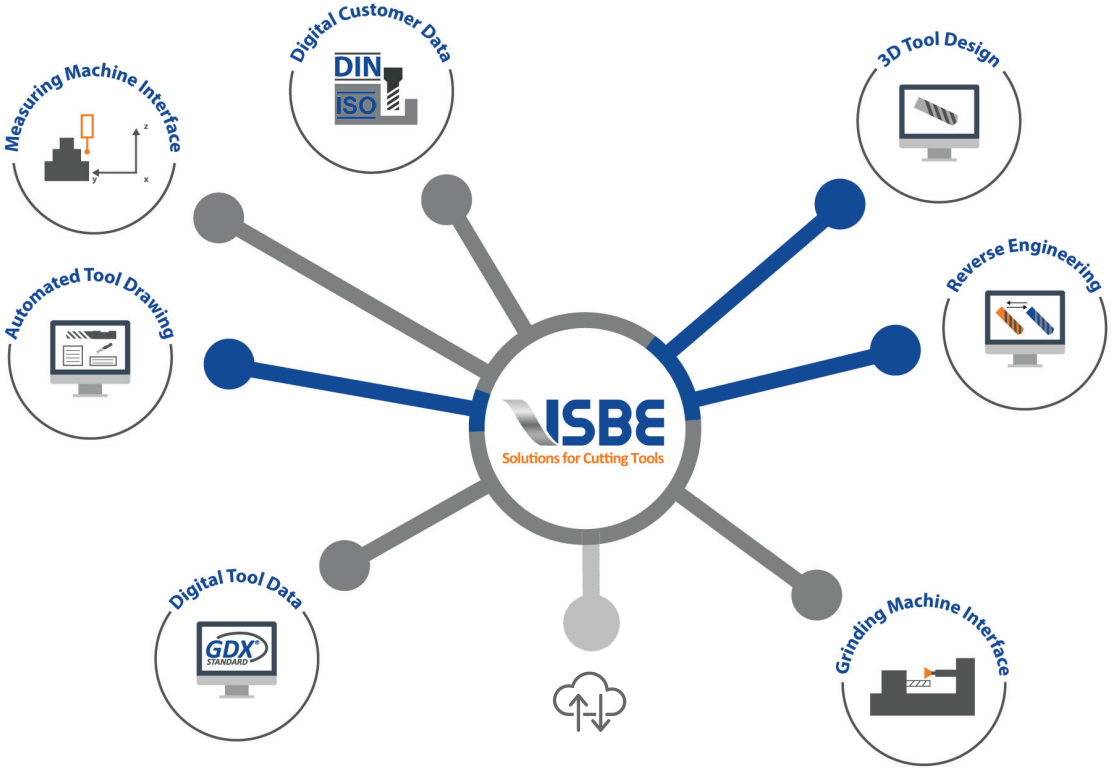
INFO Highlights at a glance

- Automated / parameterized design
- For Drills, End Mills, Reamers, Step Tools, Contour Tool and many more
- Quotation-, production-, customer-, blank-, and confirmation-drawings
- Consistent digital data / process chain
- Grinding- and measuring-machine interface
- Collision calculation (DIN 4003, ISO 13399-3D)
- Fast and precise 3D grinding simulation
- Integrated, fast tool calculation
- Preset geometry detail views **NEW**
- DIN/ISO and DXF Import and Export
- Management of own DIN/ISO tables **NEW**
- Creation & execution of measurement programs
- Automated carbide blank quick request **NEW**
- Integrated into the **ISBE** digital process chain

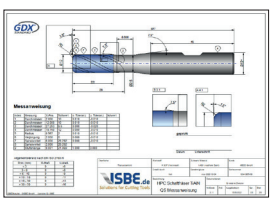
TD Sketcher

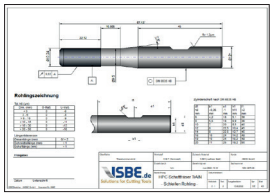
Data consistency in the digital process chain

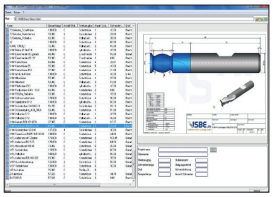
The **TD** Sketcher accompanies the entire process chain, from the offer in sales to production and quality control. Tool manufacturers can intelligently network grinding- and measuring-machines connected to **TD** Sketcher and process the tool data created with **TD** Sketcher in the commonly used formats for the various work areas.

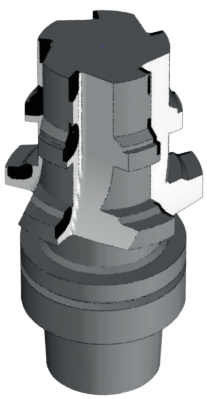


- Automated (parameterized) tool design and management of data and tables
- Creation of quotation-, blank- and confirmation-drawings as well as tool calculation and carbdie blank order NEW
- Output of the DIN data for collision calculation, cutting data recommendations or product data
- Creation of 3D models, grinding simulations and detailed tool geometries (**TD WinNut** Transfer) NEW
- Reverse Engineering – Checking of all tool data for quality assurance (**TD ReCAD** Transfer)
- Automatic creation and execution of the measurement programs and Transfer via GDX®-Box
- Provision of the tool parameters for the grinding machine via GDX®-Box Transfer


Measuring instruction


Blank drawing


Drawing management



TD Sketcher

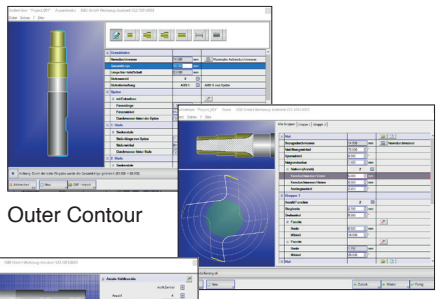
Tool design made easy

After a one-off presetting of the **TD** Sketcher, simply follow the **TD** Wizard for the design of standard and special tools in just a few steps. If necessary, the stored parameter data can be changed any time. Changes to the tool happen simultaneously. Subsequent change? No problem! You can change all or individual values at any time, even afterwards.
The templates and drawings you create change automatically.

Advantages

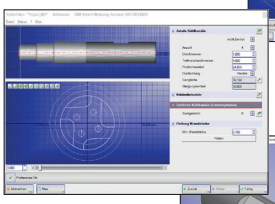
- Follow the wizard and adjust the parameter data
- Visually check the result in the 3D grinding simulation
- Drawing and data set created quickly and easily
- Processing time* of 6 - 10 minutes including inspection

Dialog

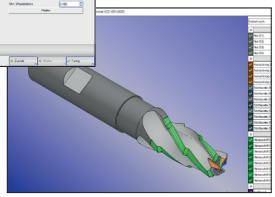


Outer Contour

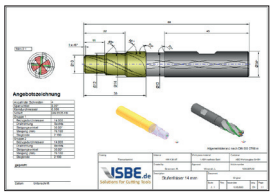
Flute Geometry



Coolant Chanels



3D result control and feasibility check



- Feasibility checked
- Created drawing
- Created data-set
- Deduct further drawings

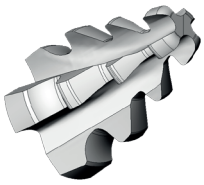
TD Sketcher - Option TD Selector

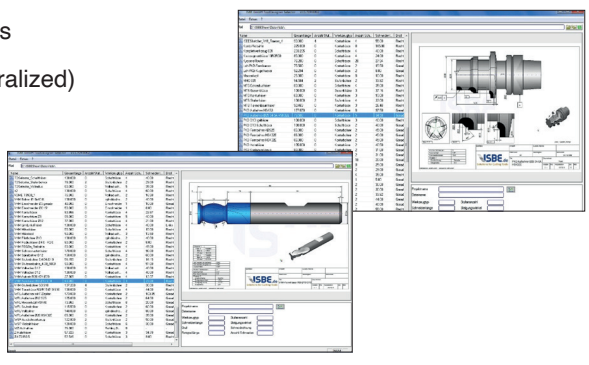
Quickly select and view quotation and production drawings

With **TD** Selector, employees have access to existing quotation and production drawings. The adjustable filters help narrow down the results as you type. In this way, drawings can be found quickly even with a large database. The **TD** Selector can be integrated into **TD** Sketcher or installed as a standalone application.

Advantages

- Filter by tool characteristics, customer, creator, item number, etc.
- Reuse any existing **TD** Sketcher drawing data
- No tedious and unnecessary searches with large databases
- Adjustable for one or several employees (central or decentralized)





*working time dependent on preset and tool type

TD Sketcher - Option 3D

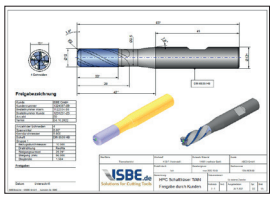
Exact 3D models generated automatically

With the **TD** Sketcher 3D you can quickly and easily create 3D basic models according to DIN 4003 / ISO 13399-3D from 2D data and generate the associated DIN 4000 characteristics. In addition, the 2D data can be exported to a DXF according to DIN 69874 (BMG layer structure). In this way, your customer can already carry out the simulation and collision check in the quotation phase/period and release the order to you even faster.

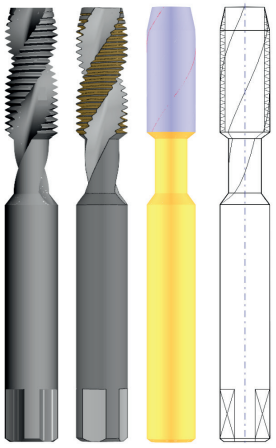
NEW

Advantages

- Automated creation and export of the most important DIN and ISO tool formats
- No time-consuming creation in the CAD system necessary
- STEP model creation through interface to **TD** WinNut NEW
- Central data management with full connection to the digital process chain



- DIN 69874 DXF (BMG)
- DIN 4003 / ISO 13399-3D
- 3D-Simulation
- STEP-Model (via **TD** WinNut) NEW

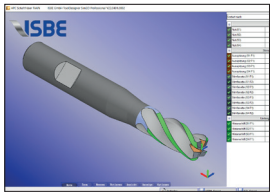


Fast and exact 3D grinding simulation

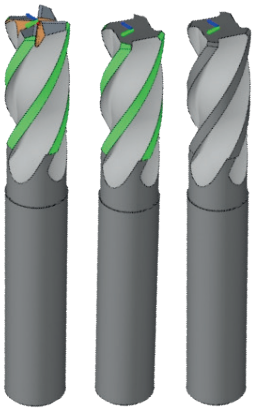
The **TD** Sketcher Option 3D also includes the fast, flexible and colour-coded grinding simulation. This precisely represents even complex tools and allows a quick, exact check of the designed tools. All work steps in the grinding process can be displayed individually or as a whole.

Advantages

- 360° freely rotatable with color-coded surfaces
- Can be called up after individual operations or as complete tools
- Clear visualization of the individual grinding operations
- Quickly created 3D picture for the quotation-drawing and the customer



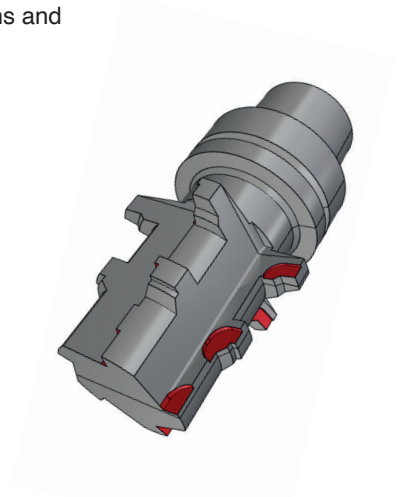
- Grinding operation selectable
- Clean gradation
- 360° freely rotatable NEW
- Detail view can be cut out



TD Sketcher - Option Diamond

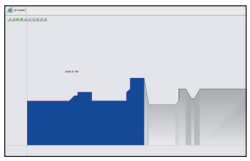
Precise design of PCD tools

With the **TD** Sketcher DIAMOND you can define and draw special PCD-and Carbide-tipped cutting tools. You describe the properties of the tool, such as the outer contour, PCD cutting edge positions and lateral cooling channels, using an easy-to-use user interface

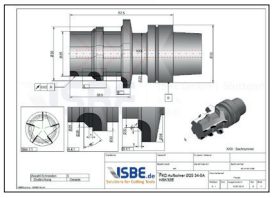


Advantages

- Automated insert positioning along the entire cutting edge
- Output of insert-geometries automatically as DXF for eroding
- Shrink the tool body using the allowance function
- Tool body can be used as a STEP model for CAD applications
- Extendable with **TD Sketcher CAM** for 3D modeling of the tool body NEW



Exact design:
Optionally with contour editor or DXF import



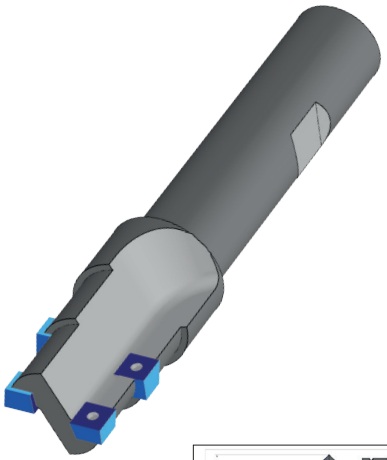
TD Sketcher - Option Insert

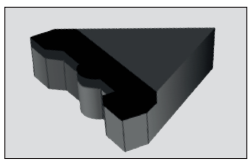
Precise design of cutting tools with ISO inserts

We developed the **TD** Sketcher INSERT specifically for cutting tools with ISO indexable inserts. With the software, you can design entire indexable insert tools in just a few minutes by simply entering the outer contour and ISO indexable inserts. There are numerous predefined tool types and DIN indexable insert geometries, and you can also save and use your own insert geometries in a library using the indexable insert configurator.

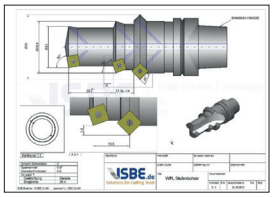
Advantages

- Automated insert positioning along the entire cutting edge
- Extensive DIN plate library to choose from included
- Create and apply user-defined inserts
- Tool body can be used as a STEP model for CAD applications





Easy to use:
Insert configurator



TD Sketcher - Option Assembly

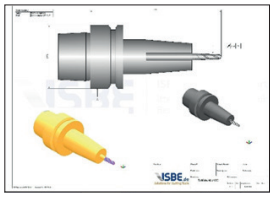
TD Assembly for digital tool assembly

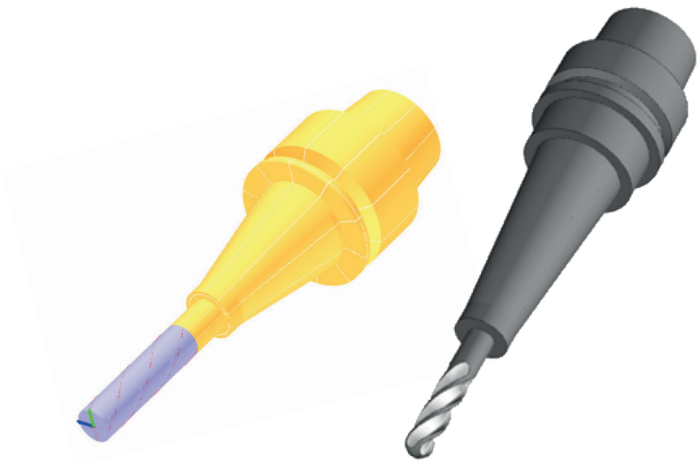
With the **TD** Sketcher ASSEMBLY you can assemble and visualize complete tools from already defined individual tools. If you need several complete tools for an operation, then simply store them clearly together in one project. You can later export the complete tools as **DIN 4003** and **ISO 13399** STEP models for CAM programming.

NEW

Advantages

- Intuitive operation without CAD knowledge
- Generate all drawings from one data set
- Save up to 50% time compared to CAD
- Save tool data and call it up at any time





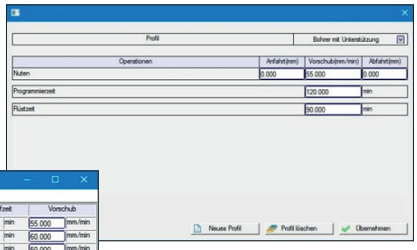
TD Sketcher - Option Time

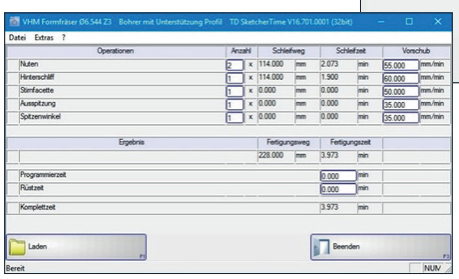
Grinding times and idle times quickly calculated

With the **TD** Sketcher TIME you always have an eye on the grinding and non-productive times - and all this without a great deal of programming work on the tool grinding machine. With just one click, the module lists all the information that is necessary to create an offer calculation for the respective project.

Advantages

- Fast calculation of the manufacturing costs including the raw material
- Flexible calculation by creating different calculation profiles
- Machine-independent calculation of the tools
- Several machines with different hourly rates can be added NEW
- Manual readjustment enables flexible handling
- Grinding volume calculation included NEW





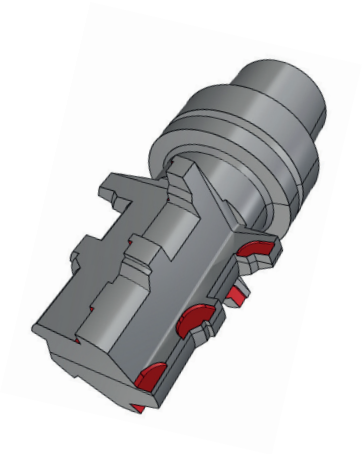
TD Sketcher - Option CAM

Generate 3D base bodies of PCD tools for manufacturing

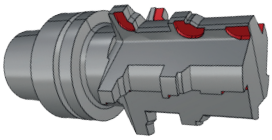
With our **TD** Sketcher CAM, 3D models with flute and insert seats can be derived directly from the **TD** Sketcher DIAMOND. The 3D model is generated as a surface model (STEP). You can either export the complete geometry as a STEP file, flutes and insert seats or just the inserts directly into the CAM systems for the production of the tool body and use them for grinding or milling operations. Elaborate designs in CAD are no longer necessary.

Advantages

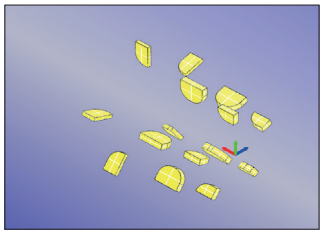
- 1x generate tool data, use many areas of application
- Save up to 50% time compared to CAD
- Automated insert positioning at the cutting edge
- Generate 3D base body models for manufacturing with one click without CAD
- Use of all existing **TD** Sketcher data



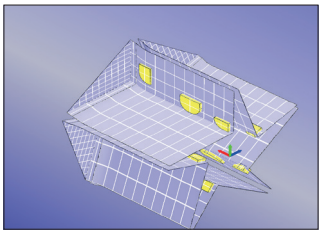
NEW



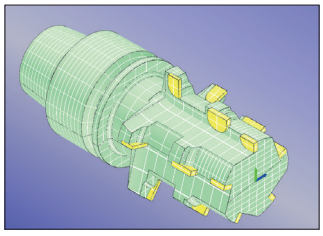
✓ STEP (SOLID) Model



✓ **3D Model Inserts**



✓ **3D Modell Flute/Insert**



✓ **3D Model**

3D base bodies created quickly and accurately

At the push of a button, the PCD or HM tipped cutting edges can also be exported as STEP to provide the equipment.
An additional calculation of the surfaces and effective cutting edge lengths facilitates the exact calculation of the semi-finished product costs as early as the project planning or quotation phase.

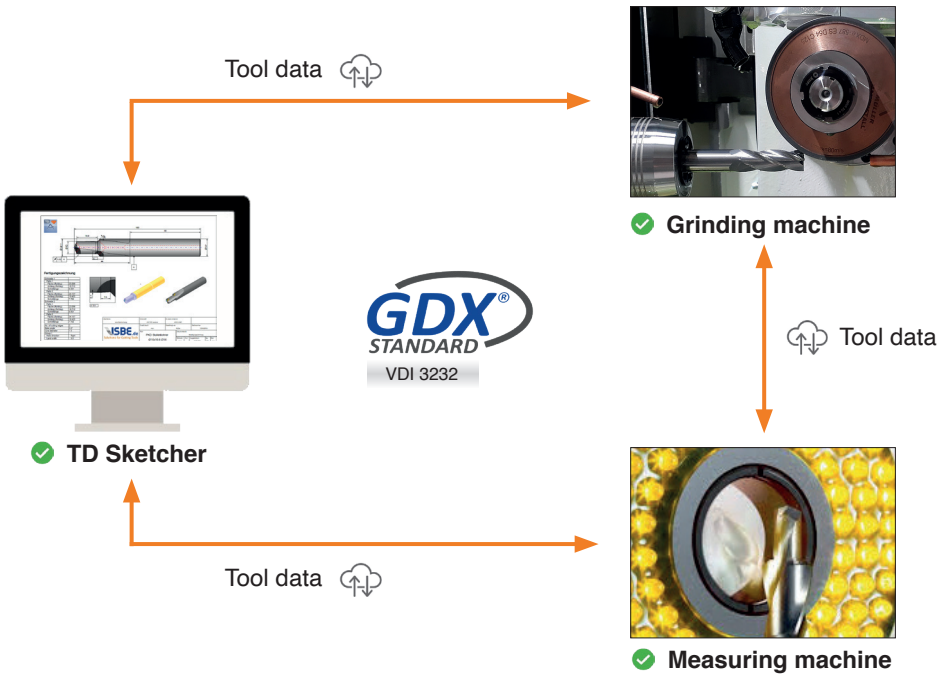
TD Sketcher - Option GDX®

Data consistency with TD Sketcher GDX®

The new **TD** Sketcher **GDX®** is a complete solution for digital manufacturing. It includes all modules for professional tool drawing, the **GDX®**-box for data transfer between multiple grinding or measuring machines and a selection of detailed views for production. In addition to quotation drawings, you can also create precise production drawings.
In addition, you can automatically create measurement instructions from the tool generated in **TD** Sketcher and then send this digitally to your measuring machine. The measuring program is automatically generated from this data record.

Advantages

- Data consistency with **GDX®** and other NC environments
- Production on different tool grinding machines - no unnecessary downtime of the machine
- Standardized interface reduces costs and optimizes internal processes
- Set-up times of the measuring machines are reduced by pre-definition of the measuring instructions
- Tool information centrally available at all times, in all plants worldwide
- Initiated by Anca, ISBE, MTS, Schneeberger, Walter, Zoller; supported by the FDPW e.V.
- In addition to **GDX®** format, also suitable for **XML** format on **NUM**roto controls NEW



Fast GDX® or XML data transfer

With the T**D** Sketcher **GDX®**, users can seamlessly transfer digital tool data to the measuring machines and tool grinding machines within the shop floor. The data transfer works with all **GDX®** compatible systems and machines with Numroto control. Data loss through manual entry is a thing of the past. With this extension, tool manufacturers accelerate their production processes considerably.

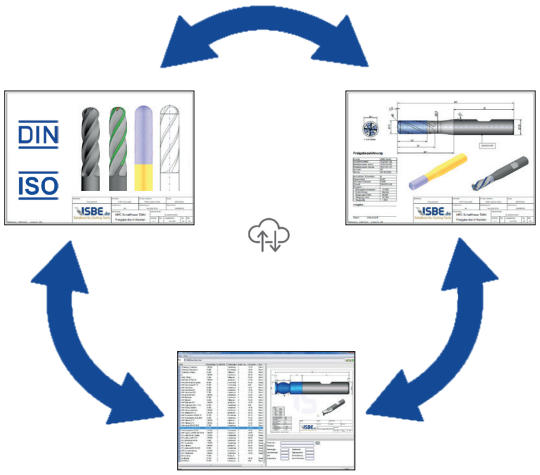
TD Sketcher - Add-on TD Converter

Continue to use tool lists, data tables and catalog data

With **TD** Converter you can convert and complete standard and semi-standard data based on **TD** Sketcher 3D. You can import data for various application scenarios from existing inventories.Even large amounts of existing data with over 50,000+ articles can be processed quickly and easily.

Advantages

- Budget-friendly solution for converting data from existing assets in different formats
- Use data, e.g. from catalogues, and use it to create 3D basic models according to DIN 4003 / ISO 13399-3D
- Significant 2D drawing of your cutting tool
- Extremely short and simple learning phase
- Innovative concept of data control and processing
- 100% merging of different formats
- Fast processing of „grown“ databases



TD Sketcher - The Complete Packages

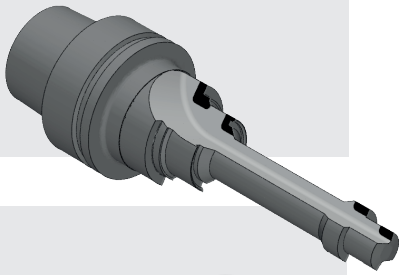
The new complete packages have been specially put together for the requirements of production and are based on the **TD** SketcherPortfolio. The packages contain a careful selection from the available options of the **TD** Sketcher and were geared to the needs of CAM-based or digital production.

NEW **TD** Sketcher CAM - The Complete Package

Sophisticated package for CAM-supported production

The new CAM options package for the **TD** Sketcher was specially put together for the design and manufacture of PCD tools in 2D and 3D with CAM systems, including the base body.

- ✓ TD Sketcher XB
- ✓ Option Diamond
- ✓ Premium Support
- ✓ Option CAM
- ✓ Option 3D

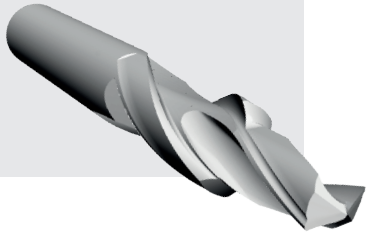


NEW **TD** Sketcher GDX® - The Complete Package

Data consistency with GDX® standard

The package includes all features for professional tool drawing, for data transfer between multiple grinding or measuring machines and a selection of detail views for production.

- ✓ TD Sketcher XB
- ✓ Premium Support
- ✓ Option NUM- interface
- ✓ Option Selector
- ✓ Option Time
- ✓ Option digital measuring
- ✓ Option 3D
- ✓ Option GDX®-Box



TD Sketcher Program and product feature overview

Feature comparison of TD Sketcher IB+ and XB versions and packages

		IB+ Version	XB Version	CAM complete	GDX® package
Tool Types (Abstract)	Drills (incl. single and multiple step drills)	✓	✓	✓	✓
	Reamers (incl. step reamers)	✓	✓	✓	✓
	End Mills (incl. step, tapered, corner radius and ball nose)	✓	✓	✓	✓
	Counter Sinkers and Contour Tools	✓	✓	✓	✓
	Taps and Thread Mills	-	✓	✓	✓
	DIN- and Contour- Inserts	-	✓	✓	✓
	HSK shanks (Type A to F) library	-	✓	✓	✓
	Tool Holders, Blanks and DIN shanks	✓	✓	✓	✓
Basic Functions (Abstract)	Create, insert and manage tables	✓	✓	✓	✓
	Create, insert and manage templetes	✓	✓	✓	✓
	Tolerance input and table management NEW	✓	✓	✓	✓
	Create tool copies (linked & unlinked)	✓	✓	✓	✓
	Show half cuts and core runs or positions	✓	✓	✓	✓
	Insert and edit detail views	✓	✓	✓	✓
	Contour editor for creating complex contours	✓	✓	✓	✓
	DXF-Import/Export	✓	✓	✓	✓
	Weldon flat acc. to DIN can be moved or edited	✓	✓	✓	✓
	Select from standard coatings	✓	✓	✓	✓
	Create and manage your own coatings	-	✓	✓	✓
	No. of pages (individual sheets for tool design) NEW	3	8	8	8
	No. of manageable logos	1	3	3	3
	Create and insert barcodes or QR codes	-	✓	✓	✓
Add. Functions (Highlights)	DIN 4000 XML export (e.g. TDM-systems, AutoCAD)	-	✓	✓	✓
	Blank Manager (order dialog & drawing) NEW	-	✓	✓	✓
	Measuring Instruction (create & manage) NEW	-	✓	✓	✓
	Own Detail Views (design & manage) NEW	-	✓	✓	✓
	Tool Preselection (create & manage) NEW	-	✓	✓	✓
Options	**3D**	-	●	✓	✓
	3D grinding simulation / feasibility check	-	●	✓	✓
	3D STEP „Cut / No-Cut“ Modell with flute NEW	-	●	✓	✓
	3D base model (DIN 4003 / ISO 13399)	-	●	✓	✓
	DXF with BMG layer structur (DIN 69874)	-	●	✓	✓
	DIAMOND	-	●	✓	
	INSERT	-	●		
	CAM NEW	-	●	✓	
	ASSEMBLY	-	●		
	PREMIUM	-	●	✓	✓
	TIME	-	●		✓
	GDX® or **NUM**roto machine interface NEW	-	●		✓
	GDX® measuring machine interface	-	●		✓
	TD SELECTOR	-	●		✓
	TD CONVERTER	-	●		

✓ included in product ● bookable as an option - not available

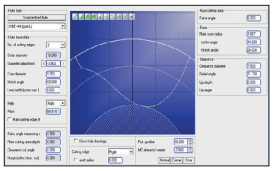
TD WinNut - 3D High End Tool Design

Exact tool- and flute- modeling in just a few steps

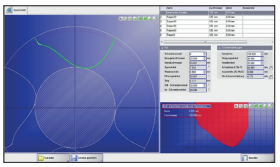
TD WinNut enables you to calculate flute- and tool- geometries including the associated grinding wheels and their adjustment precisely in just a few steps. With **TD** Point, you can model exact tip geometries quickly and easily, and visualize them using 2D views. In the background, the grinding wheel tool paths for the complete tool geometry including flute, peripheral and tip machining are calculated and displayed in a grindable 3D model.

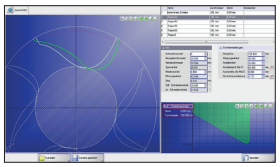
Advantages

- Saves time-consuming and expensive designs with conventional CAD systems
- Connection to all common grinding machines possible
- Calculation and output of the tool paths for the complete tool
- Data consistency, also to external CAD and FEA systems
- 2D and 3D geometry for visual inspection of the tools
- Provision of standardized dressing information for grinding wheels
- Easy and fast modeling of flute, point and tool geometry
- Use as a global or central tool profile and grinding wheel database



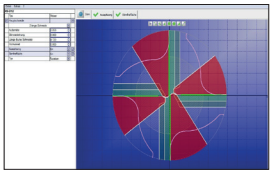
Tool- and Flute creation
with **TD** WinNut



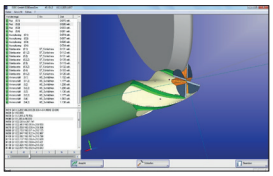


Optional: automated standard
grinding wheel positioning

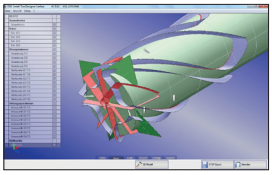
or: similarity search
with profile wheels



Definition
tool geometry



3D Grinding simulation
incl. tool paths with **TD** Sim3D



STEP (SOLID) Model
with **TD** Surface

INFO Highlights at a glance

- Design of the entire tool geometry
- for Drills, Taps, End Mills and Reamers
- Automated standard grinding wheel positioning
- Similarity search for profile grinding wheels
- 3D-Simulation of the entire grinding process
- Calculation and output of all wheel paths
- Output as a 3D model for FEA as a STEP file
- Digital data transfer to the machine
- DXF import and export function
- No later remodeling
- Unequally pitched or spiralized tools
- Integrated into the **ISBE** digital process chain

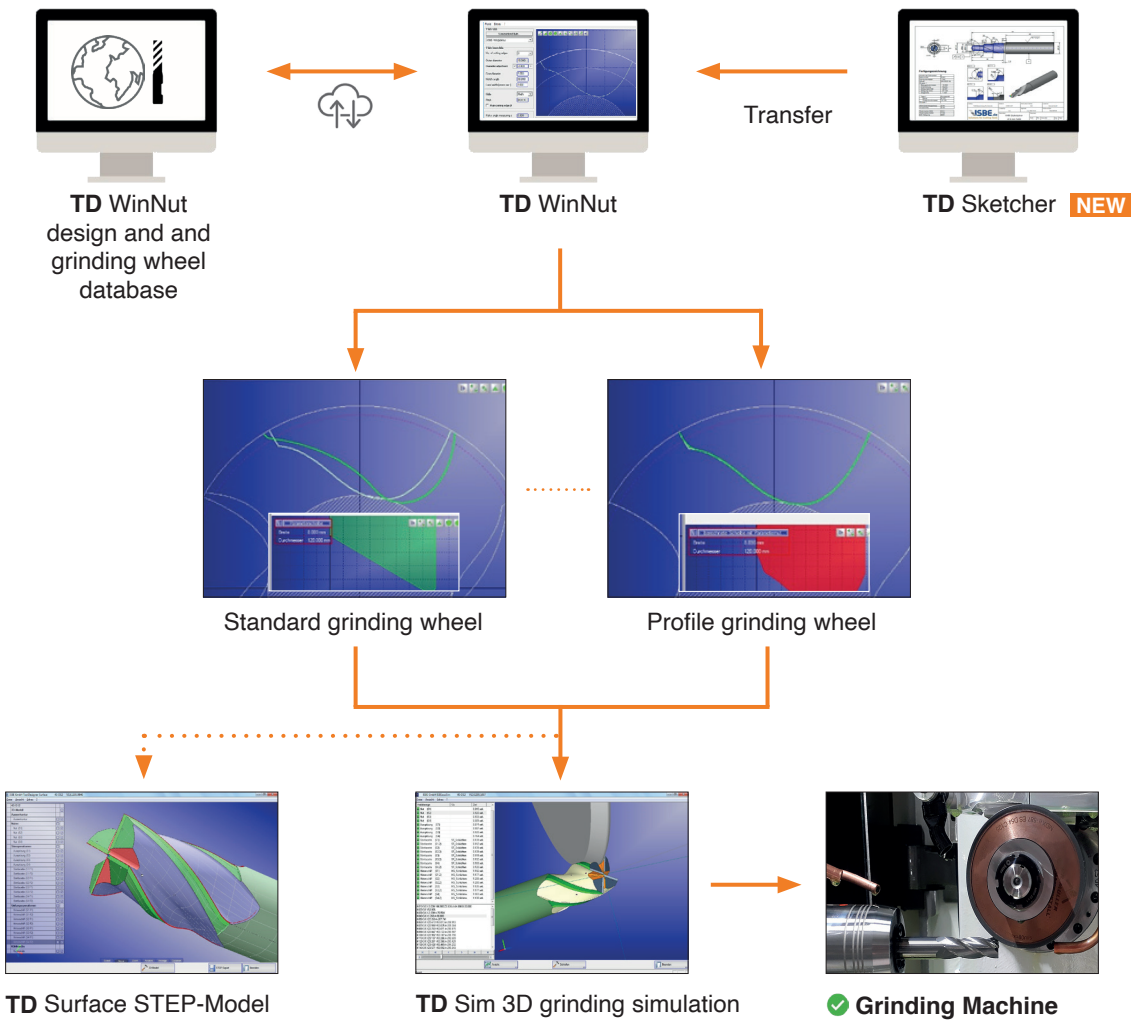
TD WinNut - 3D High End Tool Design

TD WinNut — 3D tool design adapted to your production

On one hand, you can plan and design the tool layout with standard grinding wheels, on the other hand, you can plan, design and then grind your cutting tools using profiled wheels.
After 3D simulation with **TD Sim 3D**, you can transfer the grinding wheel tool paths directly to the machine via post-processor. You can also output the data with **TD Surface** as a STEP file and use it in CAD or FEA. With the new release 2022, all common **TD Sketcher** files can be imported and edited without any problems.

TD WinNut - from 3D modeling to grinding machine

NEW



And this is how it works:

- Import or transfer existing **TD** Sketcher files directly into **TD** WinNut NEW
- 3D tool design with **TD** WinNut optionally: standard or profile wheel (can be switched at any time)
- Alternatively: Creation of a 3D STEP model for FEA or CAD applications with **TD** Surface
- Precise 3D grinding simulation with **TD** Sim 3D and calculation of the grinding wheel tool paths
- ✓ Transfer of tool paths via post-processor (PP) directly into the grinding machine

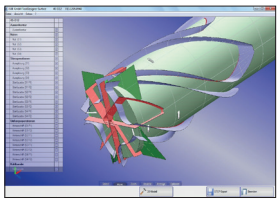
TD WinNut - Option Surface

From the modeled tool to the exact 3D surface model

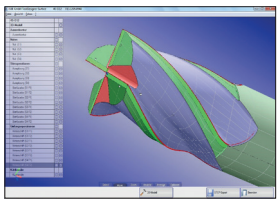
With **TD** Surface you can calculate exact 3D surface data from the tool models. Users who work more and more frequently with FEA simulations benefit from precisely calculated surface data. These are a prerequisite for simulating the use of tools in FEA simulation systems.

Advantages

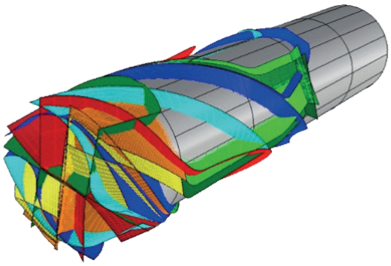
- Significantly reduced development time for new tools
- Exact analyzes for the continuous optimization of the tools
- Data exchange via STEP
- Data consistency with FEA machining simulation systems

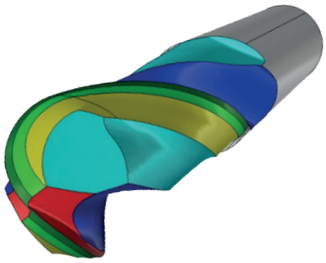


trim surface



Generate **STEP** file





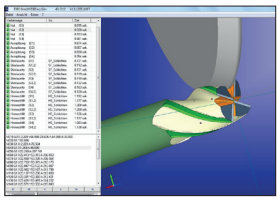
TD WinNut - Option Sim 3D

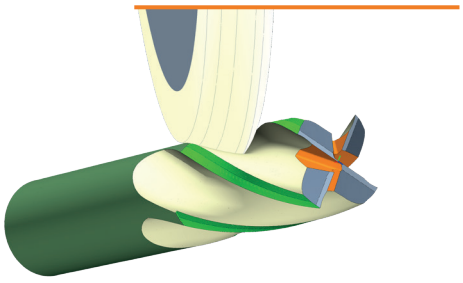
Perfect grinding simulation for precise tools

The **TD** Sim 3D option enables a comprehensive and at the same time fast simulation of a tool in a grinding environment. The tool simulated and visualized there corresponds to the tool to be ground afterwards with breathtaking precision.

Advantages

- Realistic simulation and visualization of your cutting tool
- Inspection of the tool before the grinding process
- Checking for sources of error and results
- Possibility of machine-free work preparation
- Subsequent output of the grinding paths directly into the grinding machine





TD WinNut - TD Sketcher Import

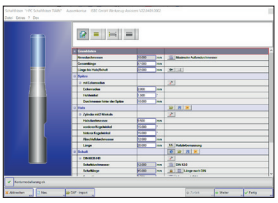
Consistent process chain from the offer to the finished tool

With the new import function in **TD** WinNut, almost all solid carbide tools created in **TD** Sketcher can be imported and further processed. This saves time and prevents data loss through repeated, manual recording of the tool data, since all the basic geometries of the tools are already loaded.

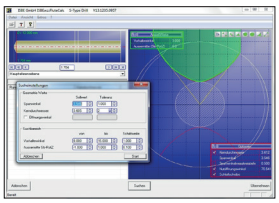
NEW

Advantages

- Easy further processing of your existing **TD Sketcher** data
- Precise transfer of data in **TD WinNut** NEW
- All data from the initial design process is adopted 1:1
- Only final flute-definition and fine tuning necessary
- Cost savings through separate **TD Sketcher** quotation process
- No data loss due to manual entry or Excel data transfer
- Closed process chain within your digital production
- Connectable with **TD ReCAD** for additional Re-Engineering



TD Sketcher drawing



TD Winnut design

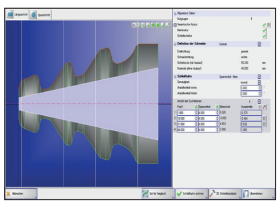
TD WinNut - Option Contour Cutter

Simple definition of complex cutting edges

With **TD** ContourCutter you can quickly and easily define contour and end mills and other profile cutting tools.
Suitable for step end mills, profile cutters, profile cutters, as well as contour tools and so called „christmas tree“ cutters.

Advantages

- Simple and quick modeling of complex cutting edges
- Automatic generation of optimal grinding wheel paths
- Free definition of core course and helix pitch (multi/differential helix)
- Additional requirements, such as the constant land width, are considered
- Calculations based on standard or profile grinding wheels



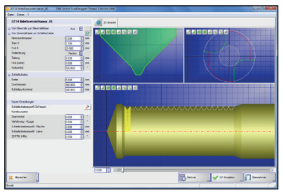
TD WinNut - Option Thread

Exact modeling of profiles for threading tools and roughing profiles

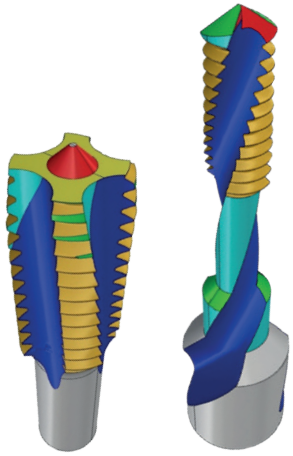
TD Thread calculates the tool geometries including grinding wheel profiles and grinding wheel tool paths for thread milling cutters, taps and also for chip-breakers and roughing profles. The calculated shapes and designs can be generated as a 3D surface model and used for production.

Advantages

- Exact calculation of the appropriate grinding wheel profile
- High thread quality; Compensation of all geometric distortions
- 2D and 3D visualization of the threads
- Special thread geometry can be used through DXF import
- Precise roughing profile for every pitch size thanks to the exact wheel profile
- Interfaces for a direct machine connection
- Export as 3D surface model in STEP format



New:
TD Roll Tap
for thread forming



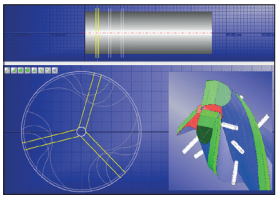
TD WinNut - Option Coolant

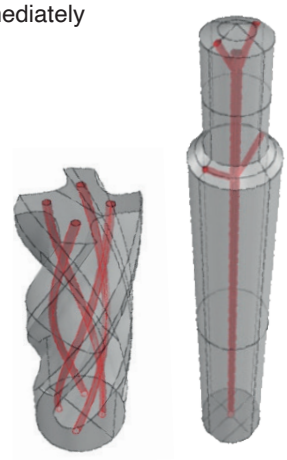
Easy definition of complex cooling channels and holes

TD Coolant enables you to define multiple junction, lateral and spiral cooling channels and to position them precisely by showing front geometry and step transitions.

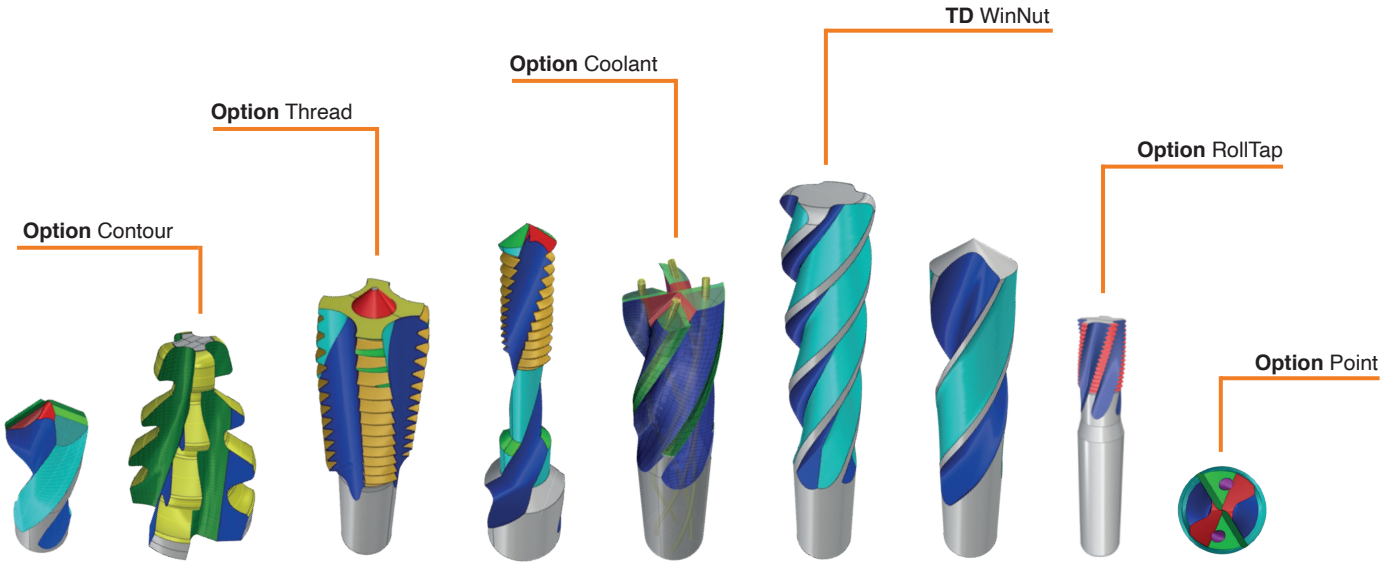
Advantages

- Detect breakthroughs and „near breakthroughs“ of cooling channels and correct them immediately
- 2D and 3D visualization of the cooling channels
- Export as 3D surface model in STEP format





TD WinNut - Tool examples



TD EdgePrep

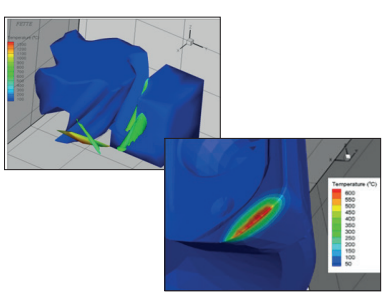
Optimized cutting processes through virtual cutting edge preparation

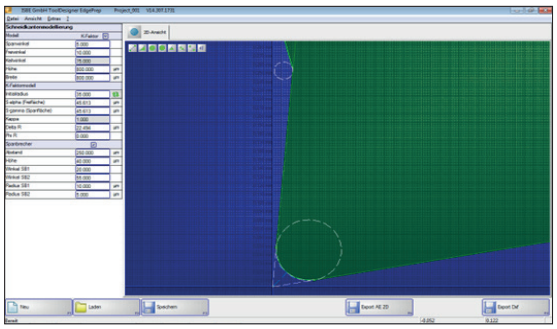
TD EdgePrep supports you with the virtual cutting edge preparation. In conjunction with FEA simulation software, you can analyze the cutting edge geometries defined with **TD** EdgePrep depending on the materials to be machined and the process parameters.

NEW

Advantages

- Parametric definition of any cutting edge micro facets, chamfers or chip breaker geometries
- Optimized metal removal rates and increased tool life
- Simple and user-friendly handling on a 2D basis
- Virtual, quickly available analyzes instead of complex real tests on the machine





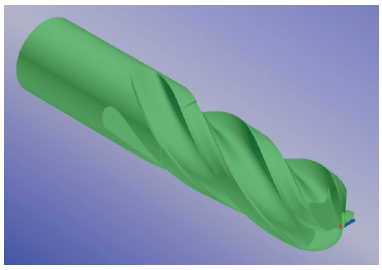
TD ReCAD

The reverse engineering solution for cutting tools

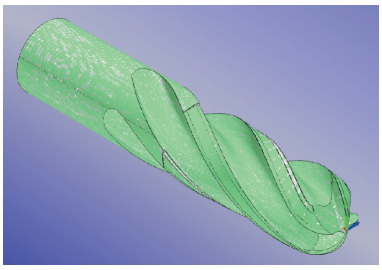
With **TD** ReCAD, re-engineering becomes easy and your end results highly accurate. Optimize cutting tools based on real 3D data in the shortest possible time and benefit from an exact reconstruction of the tool for consistent digital use.

Advantages

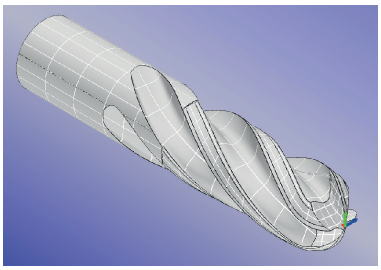
- Quick re-engineering solution exclusively for cutting tools
- Convert 3D simulations of your own grinding software into real 3D STEP models
- Convert 3D scan data into real 3D STEP models
- Realistic end mill, drill, reamer and thread geometries
- Exact digital reconstruction for continuous digital use in the shortest possible time
- Virtual optimization of cutting tools based on real 3D data
- Can be combined with **TD ToolCompare** as an add-on to the quality control solution NEW



STL Data



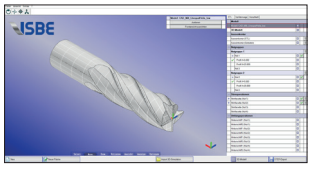
TD ReCAD



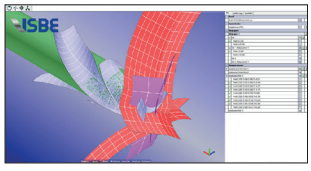
STEP Data

INFO Highlights at a glance

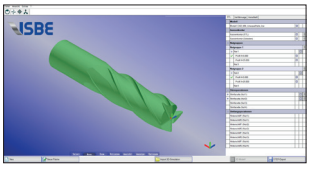
- the simplest, clearest operation
- for all common cutting tools
- extremely short processing time of 30 - 60 min
- STL data fully usable
- for all STL master models from CAD
- for all STL data from grinding simulations
- for all STL data from 3D measuring machines
- direct use of the models in the FEA system
- 100% further use in CAD systems
- Convert Toolstudio tool paths into STEP models
- Integrated into the **ISBE** digital process chain



STL data



trim surface



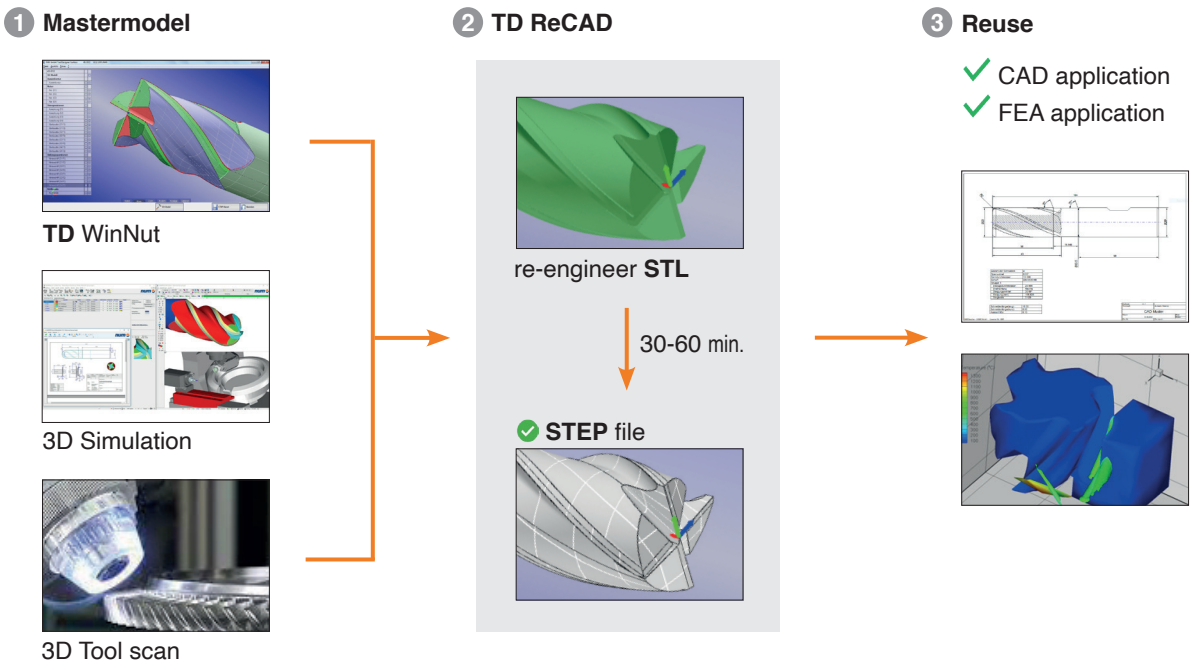
Create **SOLID** model

TD ReCAD

Reverse-Engineering with TD ReCAD

With **TD** ReCAD you can convert STL data from your master model, the machine control or from a 3D scan into STEP files and use them in downstream or follow-up processes such as CAD applications or FEA simulations.

TD ReCAD - Application overview:



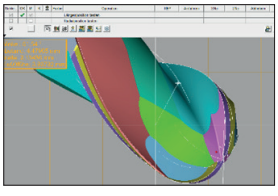
TD ReCAD - Option Walter Toolstudio Interface

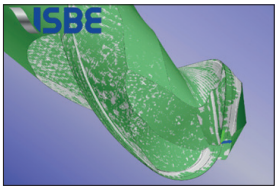
Automated redesign of Walter Toolstudio data

STL data from the Walter Toolstudio simulation are easily converted into reusable 3D STEP models with **TD** ReCAD. Generated 3D STEP models can be used directly in FEA and CAD systems. Comparisons between designed and simulated or already manufactured tools can be carried out quickly and easily with the 3D STEP models.

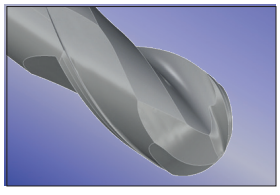
Advantages of the Walter Toolstudio interface:

- Convert 3D simulations from Walter Toolstudio into 3D STEP models
- 3D data check for quality control (target/actual comparison)
- Direct use of the generated 3D STEP models in FEA and CAD systems
- Precise area calculation using grinding wheel tool paths as a basis


Walter Toolstudio



TD ReCAD


STEP file

TD ToolCompare

The software solution for consistently high-quality tools

With **TD** Tool Compare you can compare simulation and scan data with a master model that meets all criteria.
In this way, functionally relevant differences that cannot be detected with the usual measurement on tool measuring machines are quickly and clearly recognizable.

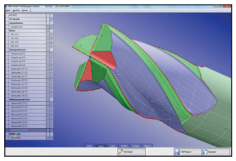
Your advantages

- Compare simulation and scan data with a master model
- Comparison of the whole object or focus on relevant points on the tool
- Clear color visualization of the deviations according to your tolerance specification
- Recognize functionally relevant differences at an early stage
- Quality control within production in just a few minutes
- Compatible with all common tool grinding and measuring machines
- The perfect Add-on to **TD ReCAD** - The Re-Engineering solution for cutting tools NEW
- Integrated into the **ISBE** digital process chain NEW

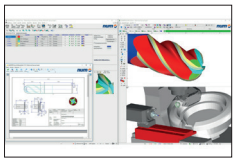
TD Tool Compare - Application overview:

NEU

1 Mastermodel



TD WinNut

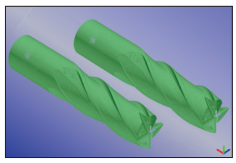


3D Simulation

3D tool scan

2 TD Tool Compare

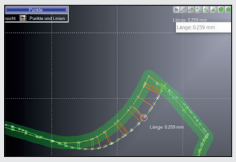
Two inidividual **STL** files

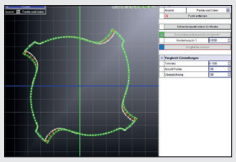


Layover of both **STL** files

3 Result

Deviation easily clearly visible





select section of cut

Your result

- Result that can be determined quickly and clearly
- Clear visualization of the deviations
- Ensuring your permanent cutting tool quality
- Feedback of deviations into the ISBE digital process chain NEW

CS Customized

Customized software solutions

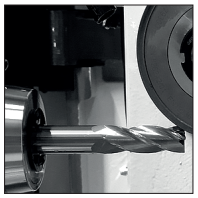
Based on our 25 years of experience, ISBE GmbH supplies an extensive range of customer-specific software, which is specially tailored to the respective application.
In addition to software systems such as for geometry calculation, for the optimization of machine controls or for optimized 3D tool design, we naturally also supply the necessary software for the creation or optimization of a digital process chain within production according to your specifications.

Examples

- Customized software solutions for rotating and stationary cutting tools
- Interface programming between different software systems
- Programming of post processors and connection of tool grinding machines
- Programming of post processors and connection of lathes and milling machines

Customer examples and solutions

- Software is a matter of trust!


Digital tool data for all cases

ISBE GmbH supplies, generates and transforms digital tool data so that tool manufacturers and users can optimally use the performance of their modern CAM systems, tool management systems and machines.

- Existing, even incomplete tool data are enriched and converted by ISBE software solutions to full, digital tool data according to different norms and standards.
- For anyone who needs more than the standard, the digital tool data can also be converted into tailor-made customer solutions.
- With the TD Converter, an innovative concept for data control and processing also enables the creation of 3D basic models according to DIN 4003 / ISO 13399-3D.

c-Com TCM WINTOOL

MTM TD Converter tdmsystems

The implementation of the digital tool data is consistently and continuously developed at ISBE GmbH. All ISBE products are already equipped for the generation and processing of consistently digital tool data.

ISBE GDX®box - The central connector

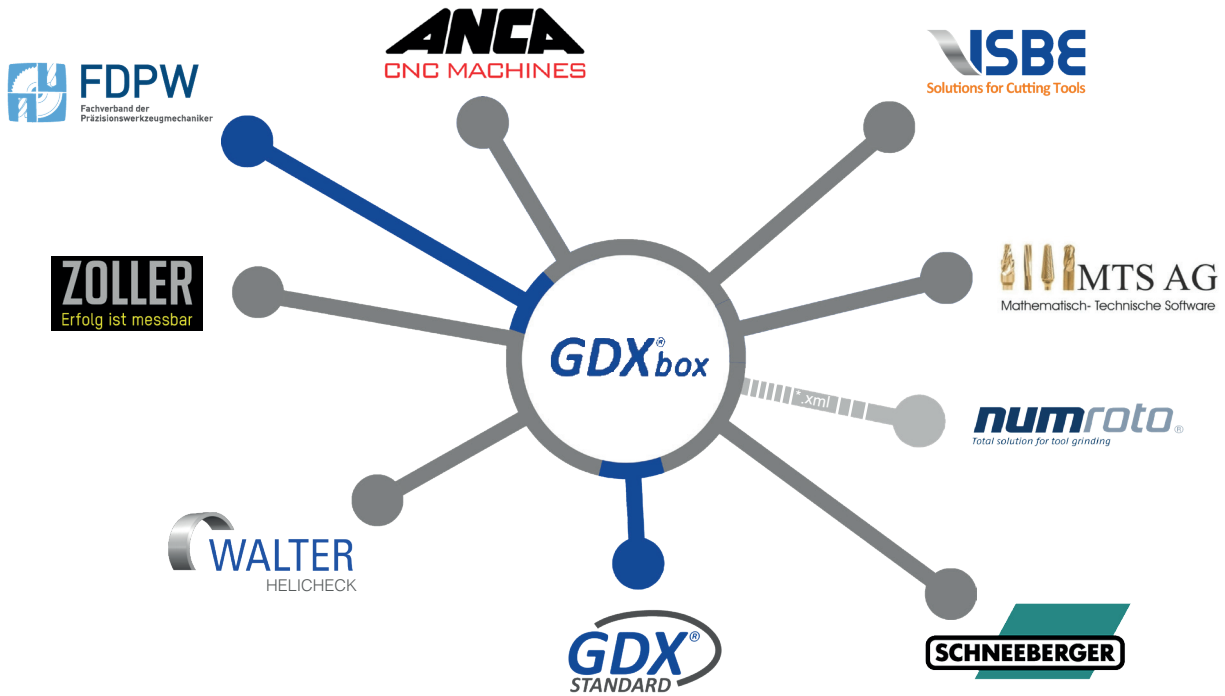
ISBE GDX®box – Digital tool data Just-in-Sequence

The provision of current tool data, in the required quality and in the required data format, is a cornerstone of consistent digital production. The ISBE **GDX®box** intelligently networks the connected machines and prepares the data in the commonly used formats for the various work areas.

The digital tool data is equally available on the tool grinding machine, on the tool measuring machine and as a digital twin at the customer. This means you can call up the current digital tool data at any time and the data exchange works smoothly.

Advantages

- Data exchange between different NC environments
- Standardized interface reduces costs and optimizes internal processes
- Provide digital tool data quickly and easily
- Tool information available at all times
- No unnecessary downtime of the machine
- Integrate other tool data formats flexibly
- Carry out production and regrinding processes on any tool grinding machine



The GDX®-Interface Standard

Since 2011, the **GDX®** interface has been standardized as **VDI 3232** guideline with the manufacturers of grinding machines and measuring machines that are important on the world market, currently under the leadership of the German Association of Precision Tool Manufacturers (FDPW e.V.).

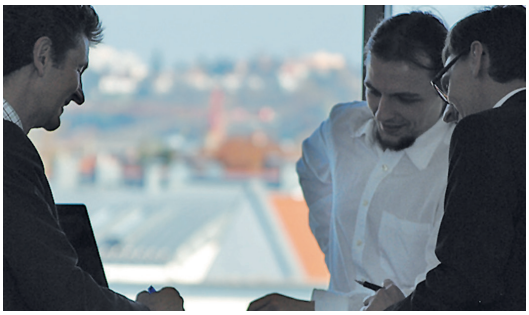
CS Service - Consulting

Consulting

ISBE GmbH provides advice on projects and offers individual support suited to your needs.

We support our customers in the systematic design of precision cutting tool models, in the creation of 3D surface models with a high level of accuracy or in ensuring grindability.

We ensure digital consistency and support you in setting up efficient, internal processes.



At a glance

- Data conversion, completion and verification of existing tool data
- Data exchange between NC environments to complete the digital process chain
- User-oriented training and consulting in the area of all ISBE products

Processing and preparation of digital tool data

The uniform all-round view of tool data forms the central data source for comprehensive provision of tool information for the Industry 4.0 era.

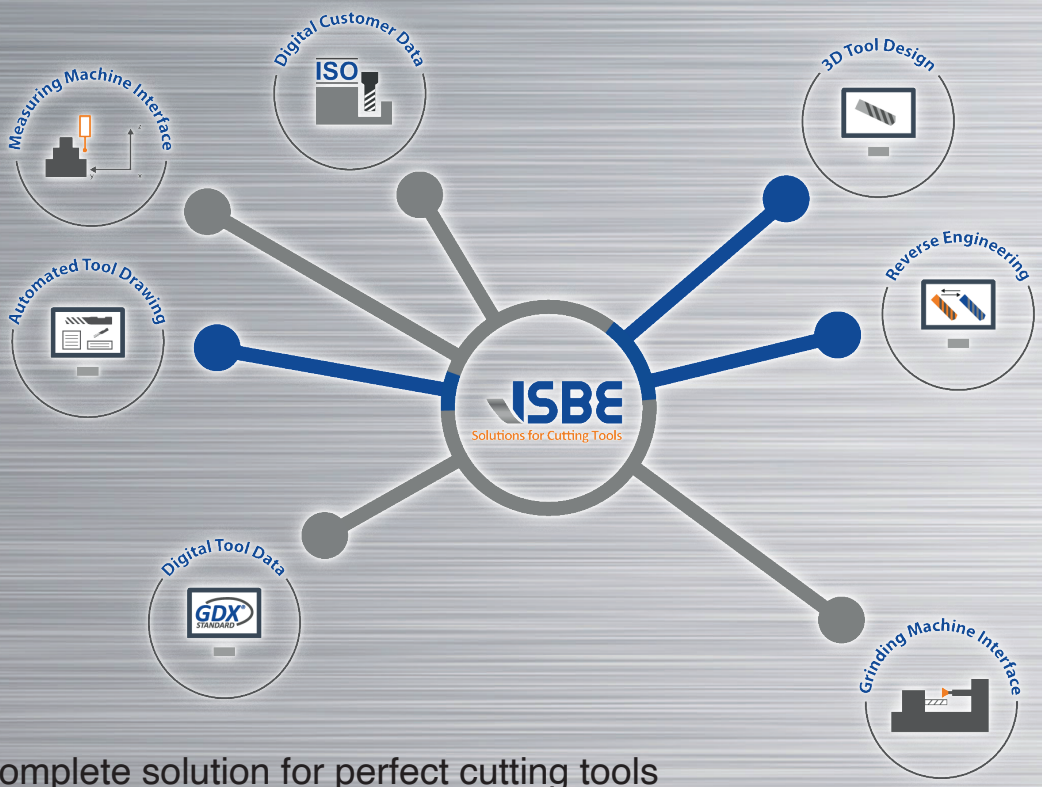
A signle and central data source reduces the risky import and export of data into other applications through uniformly stored tool data and increases the efficiency of your production. All important tool information is available throughout the value chain and the entire life cycle.

Based on the **TD Sketcher** and **TD Converter**, ISBE offers a modular, flexible software solution for special and standard tools. This covers the entire spectrum of digital tool data and connects them with each other. The ISBE software also forms the central core of your data management for your end-to-end digital production.

Graphic:
Structuring of tool data and formats for consistent digital use.

ISBE
Solutions for Cutting Tools

ISBE Digital tool data for your production



ISBE Complete solution for perfect cutting tools

TD Sketcher

- Automated, parameterized 2D or 3D tool design
- Connection of grinding- and measuring-machines
- Consistent digital cutting tool data

TD WinNut

- 3D cutting tool design and 3D grinding simulation
- Distortion-free flute and geometry calculation
- Grinding wheel calculation and central management

TD ReCAD

- Reverse engineering of cutting tools
- Creation of accurate and realistic 3D models
- Conversion of STL data into STEP models

CS Customized

- Customized software solutions
- Interface programming for grinding-machines
- Post processors and machine interfaces

CS Service

- Data conversion and completion
- Data exchange between NC environments
- User-oriented training and consulting

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25 JAHRE YEARS