

# TORNOS

*Your portal  
to Industry 4.0*

TISIS



# Software that connects you to success

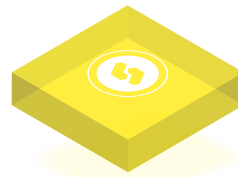


Tornos' TISIS machine communication and programming software is your portal to the production efficiencies foreseen by Industry 4.0.

Made possible by the convergence of rising data volumes and computing power, connectivity, advanced human-machine interaction, and strides in transferring digital commands to the physical world, **Tornos' Industry 4.0 concept envisions the smart factory of the future**, with sensors and **intelligence throughout the factory allowing communication with peripheral systems and with your machines** to improve operation. Operators will get more interactive means of interfacing and intervening to manage unexpected situations. **Our smart and advanced TISIS ISO code editor puts you at the center of it all.**

TISIS puts you on the fast track to truly effortless programming and real-time process monitoring. **It knows your Tornos machine fleet** and can help you decide which machine to use for a specific part. At the same time, it enables you to assess each machine's options, reduces the risk of collisions and resulting downtime, eliminates the possibility of errors, and enhances your productivity, efficiency and quality. **Access to TISIS**—the basic software in full or lite versions, connectivity packs, Android or iOS systems,—**is at your fingertips.** Just visit our TISIS WebStore at <http://store.tornos.com>.

# Programming



New part assistant

ISO code editor and Gantt chart

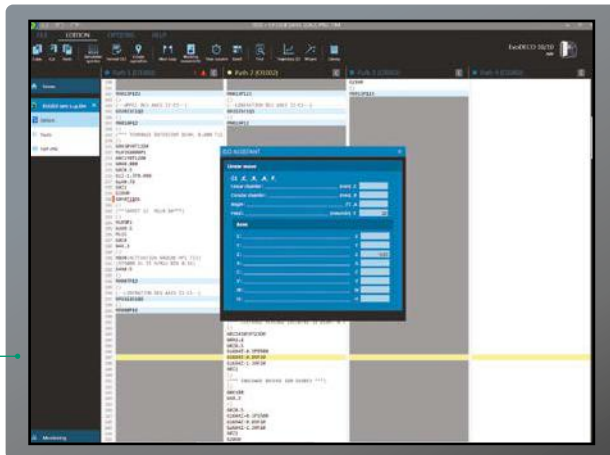
## TISIS does the thinking for you

Say goodbye to complicated programming. Our smart TISIS code editor does the thinking for you, with programming help assistants for entering ISO codes. Communicating with your machine and programming don't get any easier than this.

TISIS' ISO Assistant window guides you intuitively through the ISO codes with a brief description of each one and the optional and required parameters. Programming is made even easier by TISIS's integrated contextual help. With all of the information for creating a new part grouped on a single page, **new parts are easily addressed by the new part assistant** and you get a summary of choices for carrying out a simple check on each new part you want to create. With the connectivity pack you can store information about your parts as well as PDFs and photos taken with your mobile phone or tablet, and build a clear database that's easily accessible and navigable when you need it.

As an ISO code editor, TISIS lets you **color tags for fast visual reference** and with a convenient ISO code assistant, the right code is always just a click away. **Optimizing part cycle time and eliminating the possibility of errors is easy**, because TISIS allows you to immediately **check the critical path of your parts and make time-saving adjustments**. Plus, a Gantt chart gives you a visual representation of the operation influencing workpiece cycle time.

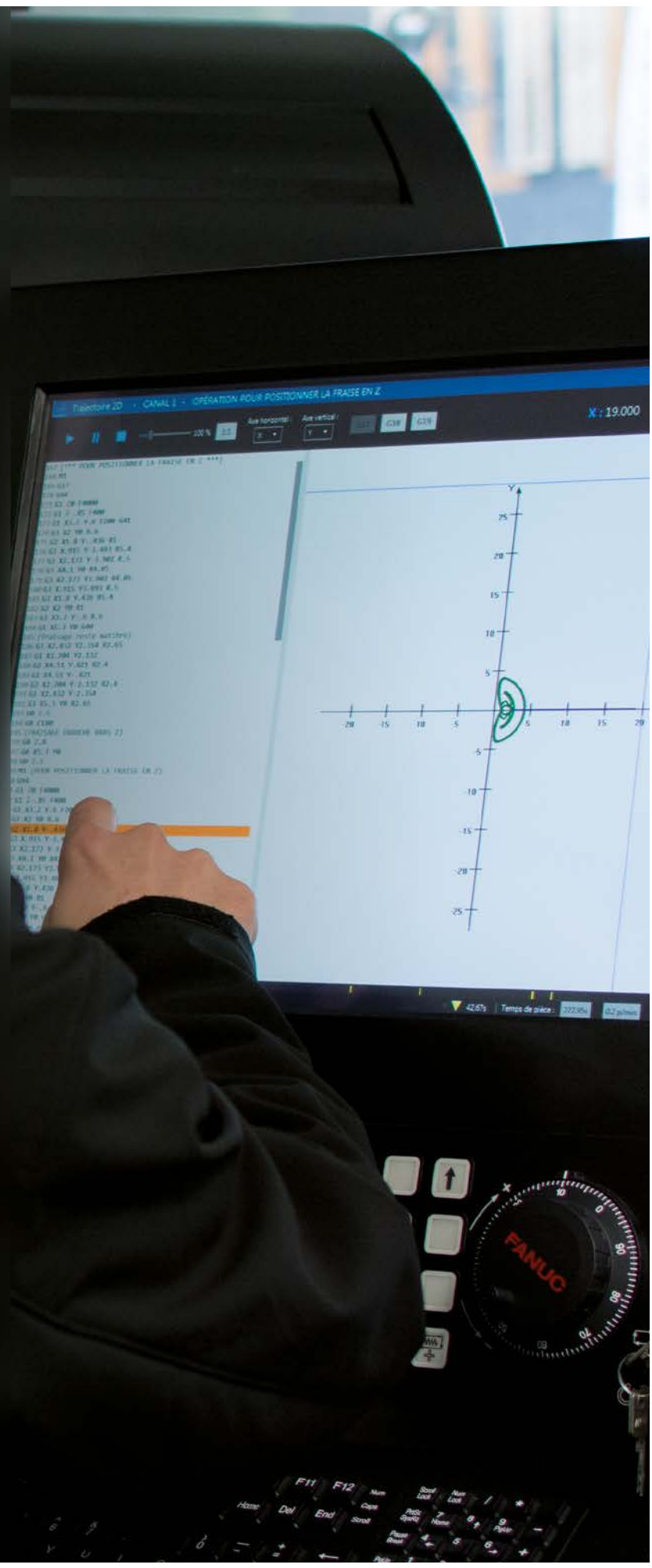
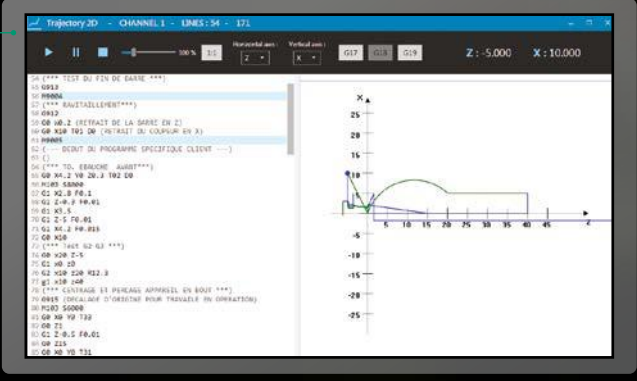
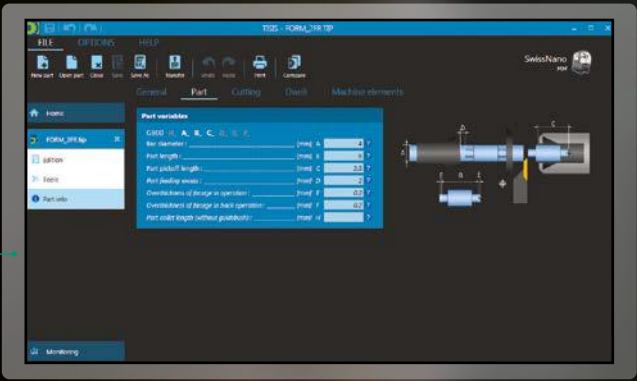
The 2D simulation facet of TISIS delivers even more benefits. You can always **assess whether your tools are going where you want them to go**, so you don't have to spend time testing your program on the machine. Just simulate and edit your tool path in real time with TISIS. At the same time, saving and storing your favorite operations for use on future parts is a snap with our operations library. Thanks to effortless communication between TISIS and Tornos Machine Interface (TMI) and our color syntax, comparing files—and identifying even tiny differences such as geometry and tool placement between files—is fast and painless.



ISO assistant

Store your favorite operations in the library.

2D simulation



# Setup



## Error-free tool holder management eliminates collision risk

*Optimizing your manufacturing efficiency is key in our Industry 4.0 vision, and **TISIS helps you achieve it** by streamlining the tool holder management setup.*

*In addition to helping you **assess your machine's options and visualize the tool path**, TISIS provides you with **helpful visual tool holder setup**. With the tool holder library synchronized to your machine, you operate with the confidence that the right tool holder is in the right place. Simply place the necessary tool holders for your parts on each slide of the machine; with a clear understanding of where you place what and in which position, it's easy to visualize your machine's potential. In parallel, you can quickly identify which machine is best suited for machining the parts you envision. As a result, the risk of collisions and related machine damage and downtime are eliminated.*

Tool holder management on a Tornos SwissNano

Merge tool holder catalog to quickly produce a new part.

***TISIS delivers efficiency you can count on**, with simplified tool holder management. Incompatibilities are seamlessly identified and managed, and you get a simplified overall view of tool geometries' default values and tools per channel. When you select the tool holder from the library, the geometry is immediately updated in the ISO editor and tool holder parameters like speed and volume are promptly updated in the system. Since each tool system can be updated in such a simple and visual way, preparing your machine in the workshop becomes child's play—and you are assured of the compatibility of tool support files of your machine tools.*

Easily set geometries for your tool holder.

Incompatibility on a Tornos Swiss ST 26

ADD TOOL HOLDER (ARTICLE)

SwissNano tool Holder (Article) selection

- 308255 Interlocking timing measurement magnet  
Option N°: 216-2060
- 308256 Reversing drilling attachment low  
Option N°: 216-2060
- 308258 Milling attachment  
Option N°: 216-2060
- 308262 Support for H spindle high  
Option N°: 216-2060
- 308263 Support for H spindle low  
Option N°: 216-2060
- 308376 Support with 6 tools 7/7  
Option N°:

308263 (216-2060)

2 spindle supports with drilled clamping. The lower tool must always be higher than the upper tool. Offset maximum: 10 mm from original machine (no. 2).

SwissNano

Previous system Next system Close

IMPORTATION OF TOOLS CATALOG

Current part

- 308216 Plate with 3 tools (turning tools B&B)
- T40
- T50

LOGO SWISS NANO .tim

- 308256 Reversing drilling attachment low
- 308215 Plate with 4 tools (turning tools B&B)
- T40
- T50

Merging catalogs

GANG 1

SwissNano

Back Previous system Next system Synchronize Cancel

TOOLS

Path 1 Path 2

Part 1 Part 2

Front

- A: 308212 PF: 4 Identifier: 2x ToolHolders ø16
- 142 DO X: Y: Z: C: A: CONTROLE
- 141 DO X: Y: Z: C: A: FONCTION EN COMPTES DE
- A: 308213 PF: 3 Identifier: 3x fixed ToolHolders ø16
- 133 DO X: Y: Z: C: A: FONCTION
- 132 DO X: Y: Z: C: A: FONCTION
- 131 DO X: Y: Z: C: A: FONCTION

SwissNano

ADD TOOL HOLDER (ARTICLE)

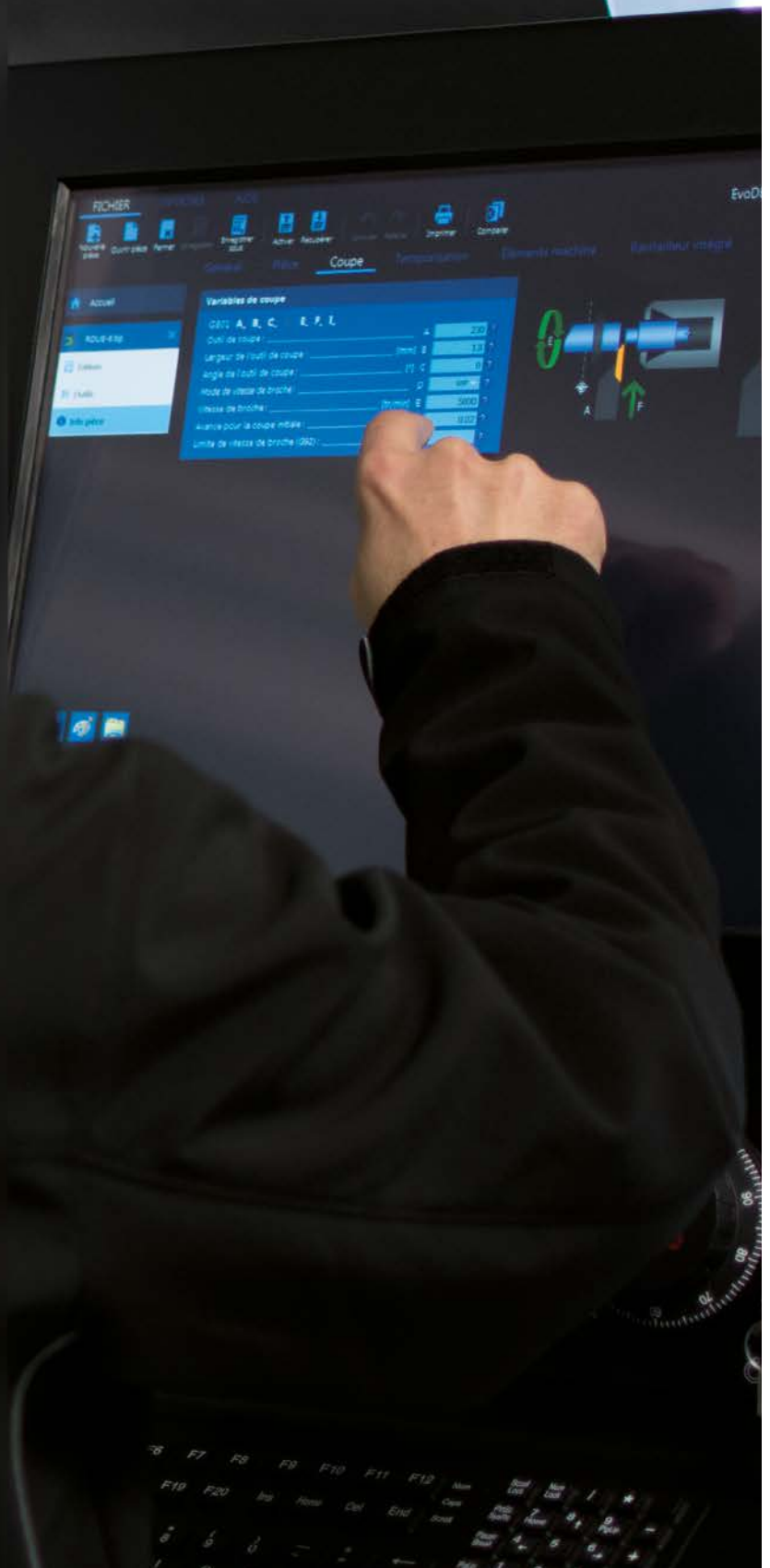
Swiss ST 26 tool Holder (Article) selection

- 384148 Stationary tools operation and backlock B&B30  
Option N°: 260-1270
- 386204 Double fixed drilling  
Option N°: 260-1560
- 386212 H spindle support (S2)  
Option N°: 260-1230
- 386223 Spindle support (S6) (W-F)  
Option N°:
- 386224 Spindle support (S1) (W-F)  
Option N°:
- 386223 0 Starting spindle support (S' - X' (W-F)

TOOL PLATEN 1A and 1B

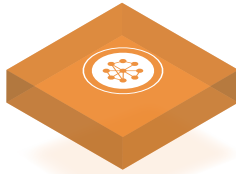
SwissNano

Previous system Next system Close



# Option

## TISIS Connectivity Pack



### Real-time production monitoring

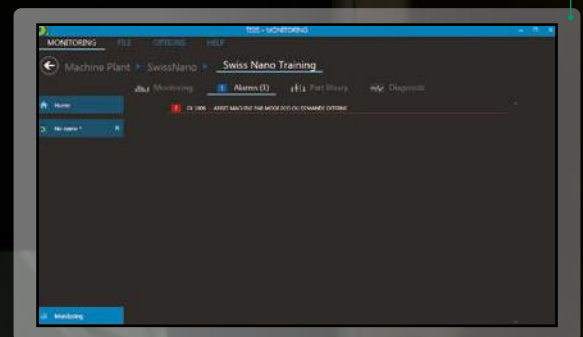
With the TISIS connectivity pack feature, your progress toward your targets is never in question. **All the information you need**—including the availability of each machine and a full overview of the workshop—is right there on your screen.

Aligned with our commitment to putting you at the center of our Industry 4.0 approach, our software allows you to **transfer programs to your bank of machines** by USB stick or directly over the network of your company. For additional convenience, you can modify the program on the machine and transfer it again to your computer and maintain full traceability, and in any case our file comparison tool is only one click away.

Remote monitoring is close at hand, too, with TISIS whether you're at your personal computer or **checking in remotely by smartphone or tablet**; you can **track the progress of your production runs, supervise your workshop** and quickly **provide your customers with a deadline**. Production monitoring with TISIS helps you keep pace in a world of ever-shorter turnaround times and exceed your customers' expectations. If a problem arises in your part production run, TISIS makes it possible for you to conduct an in-depth check of your machine in real time, including the load and temperature of each spindle and axis.

Transfer the program over the network directly to your machine.

Get notified when an alarm occurs.





Overview of the workshop

Tool holder management on a Tornos SwissNano



TISIS WebStore



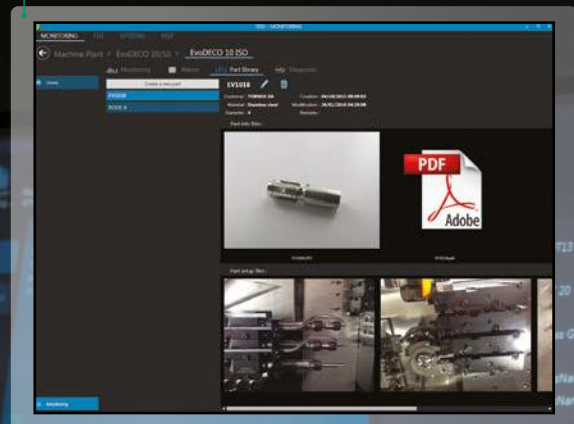
TISIS Tab is available for both Android and iOS devices, so you can directly monitor your workshop performance from your smartphone or tablet. TISIS Tab allows you to see the production status of each machine in real time, so you know exactly when a series of parts will be finished, are aware of the actual theoretical cycle times and the override of the spindle. You know when a machine is stopped and why. Plus, you can be kept informed of an occurring alarm or an error message for a machine installed in the factory. The complete alarm history can be retrieved on the tablet PC to get detailed traceability of the production. The push notification system keeps you constantly up to date by letting you know immediately if anything goes wrong.

In addition, TISIS Tab allows you to store setup and parts pictures directly on the machine from your smartphone and adds them to your parts database. This simple but effective solution helps you to repeat the setup with ease. Of course if you are equipped with the setup cam, it is also easy for you to store pictures from the camera installed inside your machine. If you are running a company network and a virtual private network (VPN) channel is available, you can monitor your machine from anywhere.

Download our TISIS app for android, iOS or personal computer at our TISIS WebStore: <http://store.tornos.com>.

Check each axis load and temperature in real time.

Machine parts library



# Option

## TISIS Net



### TISIS Net follows you, wherever you are

With the advent of new technologies, secure data servers are now an integral part of our private and personal lives. Cloud computing, a practical, on-demand model, authorises securing of information in a dematerialised way and enables ever present, remote access to the data.

### A secure, global connection

Data protection is now one of the top priorities in a fully digital era embodied by the IoT (Internet of Things) and Big Data. TISIS Net provides a connection to a highly secure server. Machine monitoring and supervision functions have, until now, been

reserved for your internal network. This Tornos module makes them permanently available outside the company environment in real time, for optimal control of your production and productivity. Data is encrypted and treated as highly confidential. The machines and the server are connected via a strict HTTPS type protocol. Only sensitive data, such as programs, drawings or workpiece data, is not transferred in this way.

### Simple and intuitive to implement

When the TISIS Net option is installed, each customer is assigned a personal account that can be accessed using a login and password. When a user moves outside the company network, an Earth icon indicates that the connection is via the secure server. TISIS Net does not replace your internal server; it makes a synchronised copy of the status and monitoring data.

### Optimised monitoring

TISIS Net makes it possible to add a “push notifications” function during machine downtime, using either sound or vibration and after a time delay, which is preset by the user. The various parameters, including alarm or operator messages and end of production, can be configured to suit your preferences.

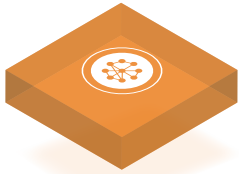
An additional option for the connectivity pack, TISIS Net is available from your Tornos distributor.



Benefit from continuous information using push notifications

# Option

## TISIS i4.0 software package



All events are recorded and available whenever you want.

### Efficiency monitoring in real time

When it comes to overall equipment effectiveness (OEE) platforms, a lot of solutions exist on the market, TISIS i4.0 provides the user with an automated and turnkey solution. The information is automatically entered into the system without user involvement. Data can easily be exported into common separated values (CSV) files for all the machines, for one machine, and for a defined period of time.

View and analyze your machine state at any time, either as a summary or as a timeline. This makes it easy to detect events; simply place your cursor over the code to get information.

Quickly monitor your workshop efficiency by using pre-configured charts that are easily exploitable for reports. Pareto charts and pre-configured heat maps point out inefficient processes in your workshop, so you can take steps to correct them.

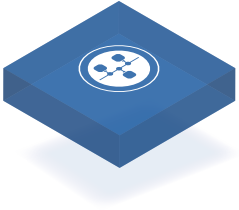
Analyze the efficiency of your workshop.

Check your machine performance.



# Option

## TISIS Extended Interface



### Extended connectivity

Tornos has acted fast in shifting towards Industry 4.0 technologies. On one hand, with its own applications such as the TISIS i4.0 module which, among other things, **analyses the performance and/or efficiency of Tornos machines and, on the other hand, performs monitoring or supervision functions.** TISIS products only display information from Tornos machines.

The TISIS software suite is now fully open to the world of Industry 4.0 by providing options for exchanging data with other tool correction, program transfer or supervision systems. This external communication is set up via the TISIS Extended Interface module provided with the TISIS connectivity

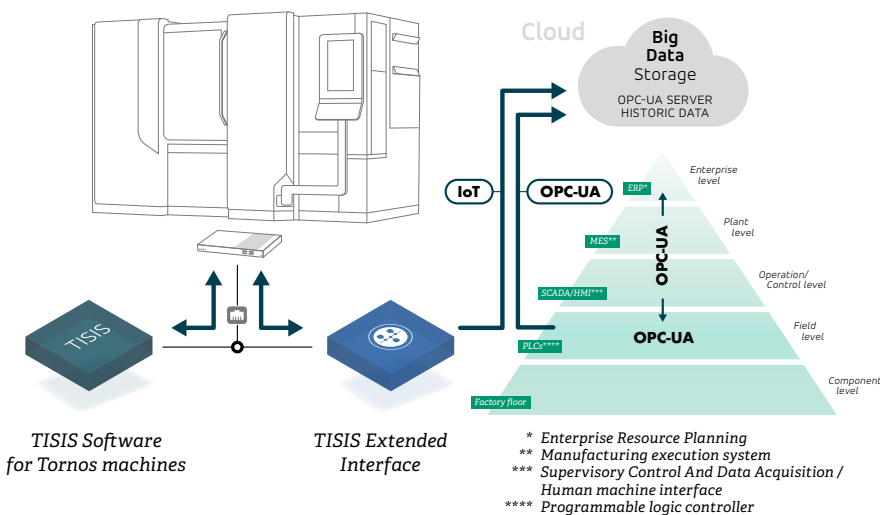
pack. This new module is based on one of the key protocols of Industry 4.0: OPC UA: **OP**en **C**onnectivity - **U**nified **A**rchitecture.

The OPC UA protocol is a "plug and play" solution that optimises the interoperability of industrial systems. Separate from any manufacturer and multi-platform, OPC UA means all systems are interoperable, while ensuring a high level of security as the latest cybersecurity standards have been adhered to. **This standard means data can be exchanged and trade models used in the industry can be integrated.** Machines can also communicate with each other, adapt to changes in production chains, and provide intelligence during exchanges with MES, ERP, IoT industrial systems. Flexible and completely secure, OPC UA is the preferred communication protocol when implementing a successful digital transformation plan.

Returning to the TISIS Extended Interface, this new module enables two-way exchanges depending on the uses described below. Information exchanges have been divided into 3 separate modules:

1. The standard module that manages standard communication for supervision
2. The optional module for managing part programs and production data (production order, part batches etc.)
3. The optional module for the two-way exchange of tool data.

TISIS Extended Interface is Tornos' solution for connecting Tornos machines to ERP or MES systems.



# Option

## UMATI



### umati – the universal machine tool interface

There's no better connection than that of a common language – which is also true for machine tools. The easier they exchange and share information, the more efficient they are. In a joint effort, 17 partners and VDW created umati. It enables machine tools and peripherals to connect to customer-specific IT ecosystems – easy, secure, and seamless. umati is an open standard for machine tool users throughout the world. It serves to exploit new potentials for manufacturing of the future.

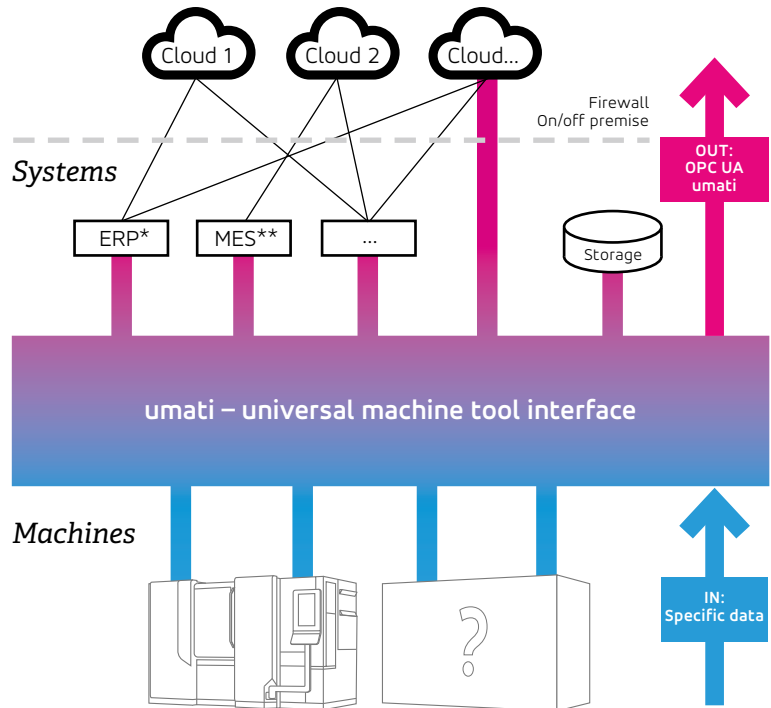
The VDW is a member of the OPC Foundation and thus part of the OPC UA community. Via Cecimo, the European machine tool umbrella association, and its counterparts in the United States, South Korea, China and Japan, VDW is firmly tied to the international machine tool environment.

### umati – what is the object of standardization?

umati has set itself the goal to create the standard for connecting machine tools to IT systems in the production environment (vertical integration). In the long term, the following parameter groups are covered:

- Uniform machine identification
- Operating state of the machine tool
- Information on production order
- Supply information (energy, material)
- Tools and workpieces
- Storage systems
- Forecasts on user interactions

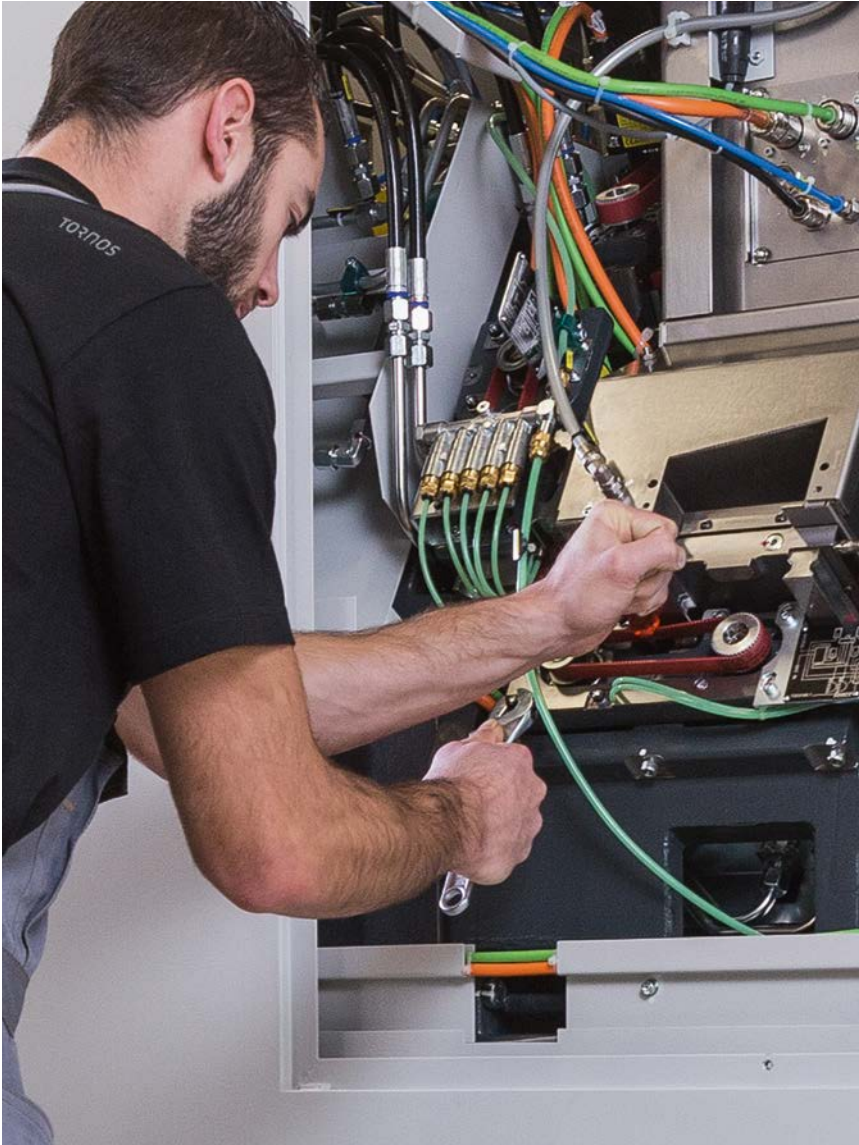
### Infrastructure



The focus is on data with an update rate of approx. 1 second. At first, use cases for status monitoring of machine tools are standardized, e.g.:

- Fast overview if production is running
- Job overview, job order
- Errors, alerts and interruptions
- Machine status, state of operation
- Information about upcoming manual intervention
- Unified identification of machine tools from various suppliers
- Data analytics (program run time, errors, interruptions, energy and other consumables)
- OEE analysis
- Tool management

# Tornos Service



Backed by both geographical proximity to customers and an in-depth understanding of their processes, applications and market challenges, Tornos Service delivers an unparalleled continuum of support: start-up assistance, expert training and coaching, free hotline, on-site operations support and preventive maintenance, original spare parts seamlessly delivered worldwide, complete overhauls to extend the service life of Tornos machines, and a range of operations and X-change modules to expand customers' application capabilities and profitability.

Buying a Tornos machine is much more than a business transaction. It is your investment in the future. Tornos Service thrives worldwide by guaranteeing the superior production capabilities of products carrying the Tornos name.

Situated close to its customers, as demonstrated by the 14 Tornos Service Centres strategically located across Europe, Asia, and the Americas, Tornos Service offers a comprehensive range of leading support services for Tornos machines, and encompasses the innovation, reliability and attention to detail expected of a premier Swiss brand. And it is all backed by a 100-year legacy of expertise and in-depth understanding of customers' processes, applications and challenges across a wide range of industrial segments, including automotive, medical, electronics and connectivity, and micromechanics.

## Start-up assistance

From the first feasibility tests prior to purchase, you are in good hands with Tornos Service. In our state-of-the-art Customer Centers, expert application engineers support you with tests to gauge the feasibility of machining processes and applications. With start-up assistance, you are secure in the knowledge that you will never be left alone to deal with a brand new machine.

## Expert training and coaching

Engineered for intuitive and easy use, Tornos machines offer a vast range of options and enable myriad processes. Expert training and coaching help your employees become specialists proficient in programming, handling and maintenance, adding more value to your processes, applications and products.

## Free Hotline support

Wherever you are in the world, highly qualified specialists who speak your language and understand your processes are just a phone call away to quickly support you with handling and programming solutions.

## On-site support

Fast, efficient on-site operations and preventive maintenance ensure the continuous high performance of your Tornos machines. Regular

scheduled preventive maintenance can help you avoid 70% of machine breakdowns and keep you on the path to productivity.

### Certified original spare parts

Rapid, reliable, worldwide delivery of certified original spare parts is a speciality of Tornos Service. Regardless of the age of your Tornos machine, we stock the essential certified spare parts to keep the machine running at peak performance.

### Machine overhauls

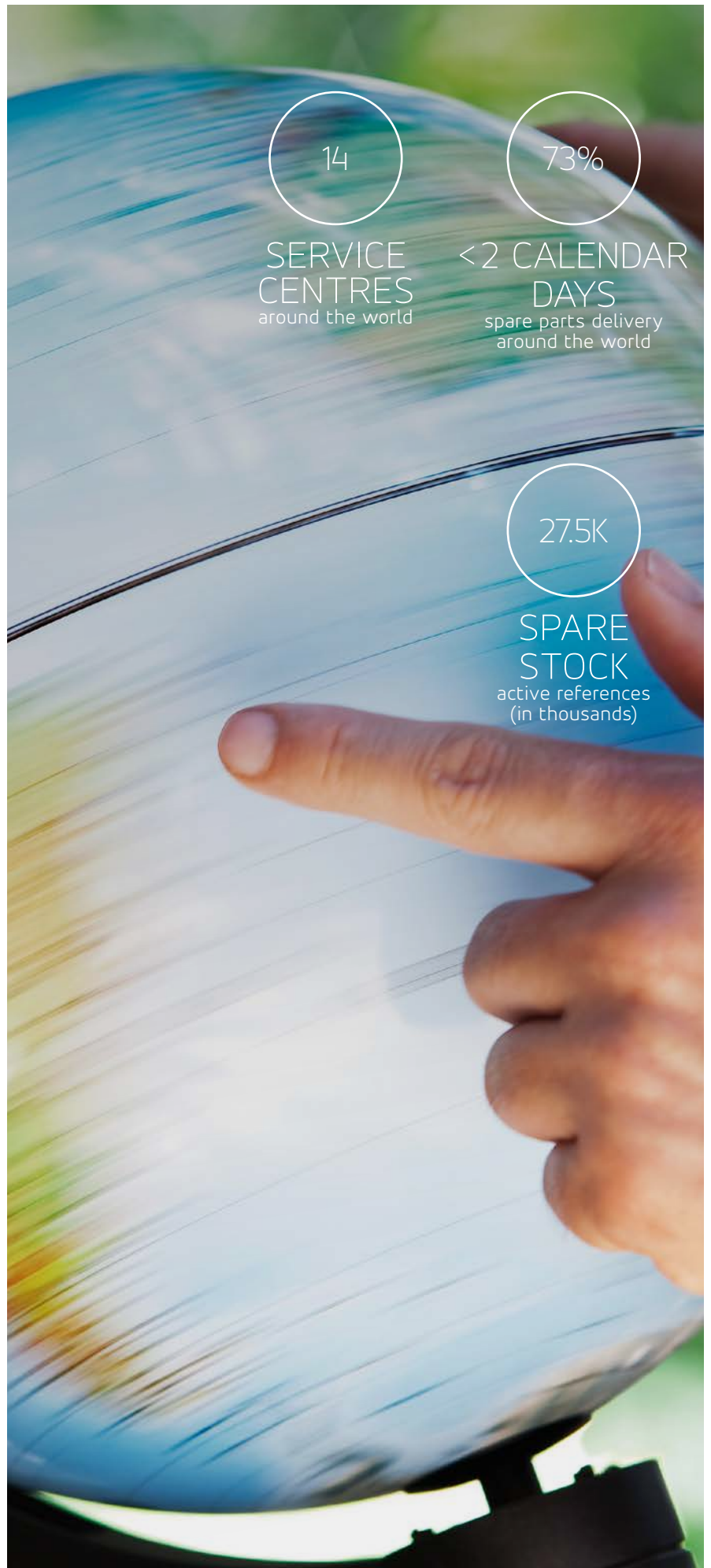
Tornos machines inspire confidence. It's no surprise, therefore, that many customers turn to Tornos for a complete overhaul of their machines. The Tornos overhaul service returns the machines in good-as-new condition, significantly extending their service life.

### Options, upgrades and X-change modules

To help you achieve your manufacturing, productivity and quality objectives, our experts collaborate with you to manage complex machining processes, develop software features for machining complex shapes, design special equipment, and tailor peripherals to your needs. Tornos' X-change modules expand your application capabilities and profitability.



Discover  
Tornos Service



14

SERVICE  
CENTRES  
around the world

73%

<2 CALENDAR  
DAYS  
spare parts delivery  
around the world

27.5K

SPARE  
STOCK  
active references  
(in thousands)

We keep you turning



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Tornos  
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