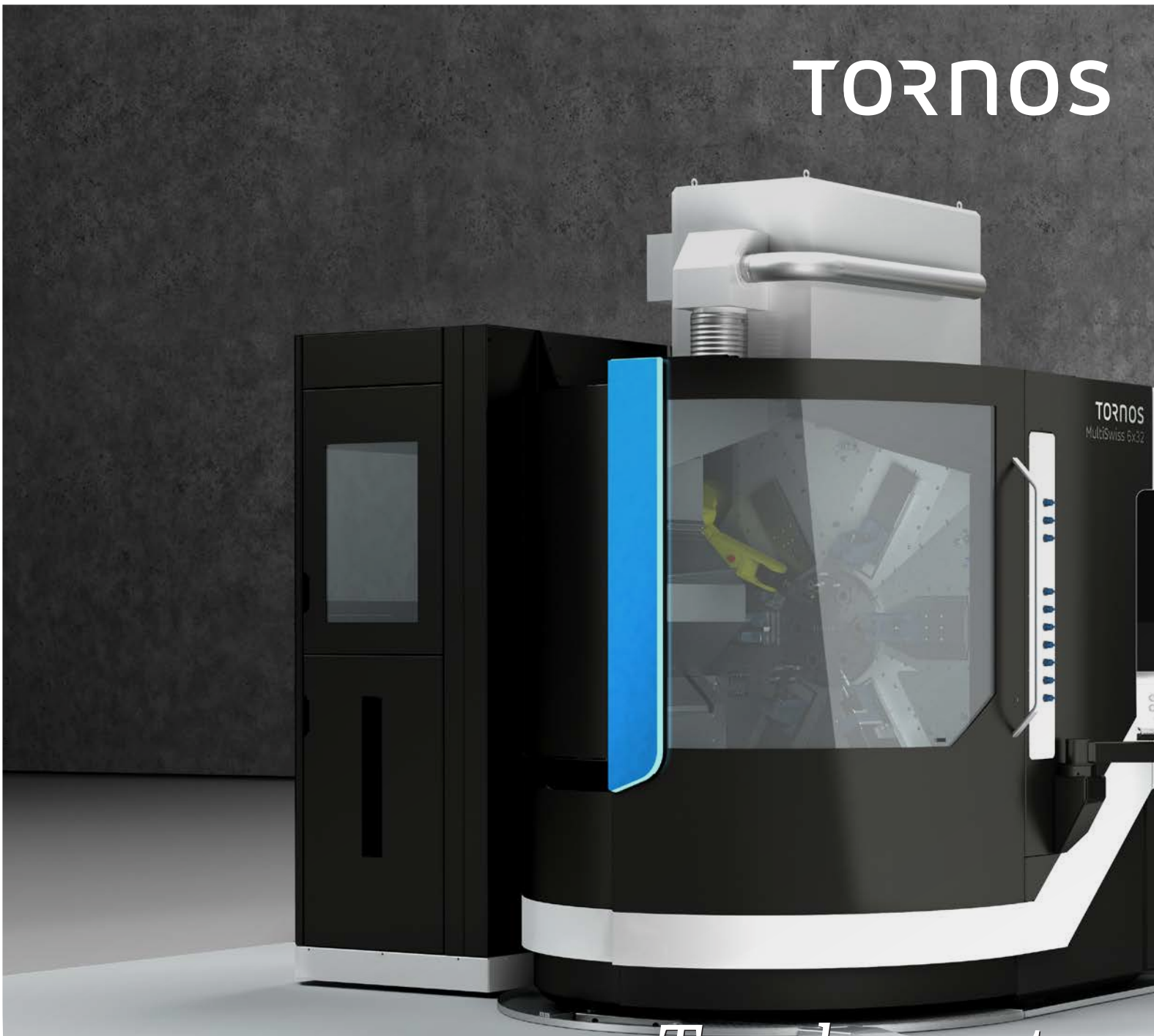
TORNOS




*Turnkey automation solutions*

# MultiSwiss Chucker

# Your automation solution

## MultiSwiss Chucker

*Automation is a key component of Industry 4.0. Every Tornos machine can be equipped with a standard automation module or an automation solution adapted to your needs, for a modular production system. The economic advantages of using a chucker lathe to machine parts from billets with a specific cast, forged or metal injection moulded (MIM) shape are well established. The goal of this concept is to have a special shape and to finish the part with precision turning and limited roughing operations.*

Number of C axes 7

6 spindles

Max. no. of tools 18

16 mm maximum diameter

**MultiSwiss 6x16 Chucker**

Number of C axes 7

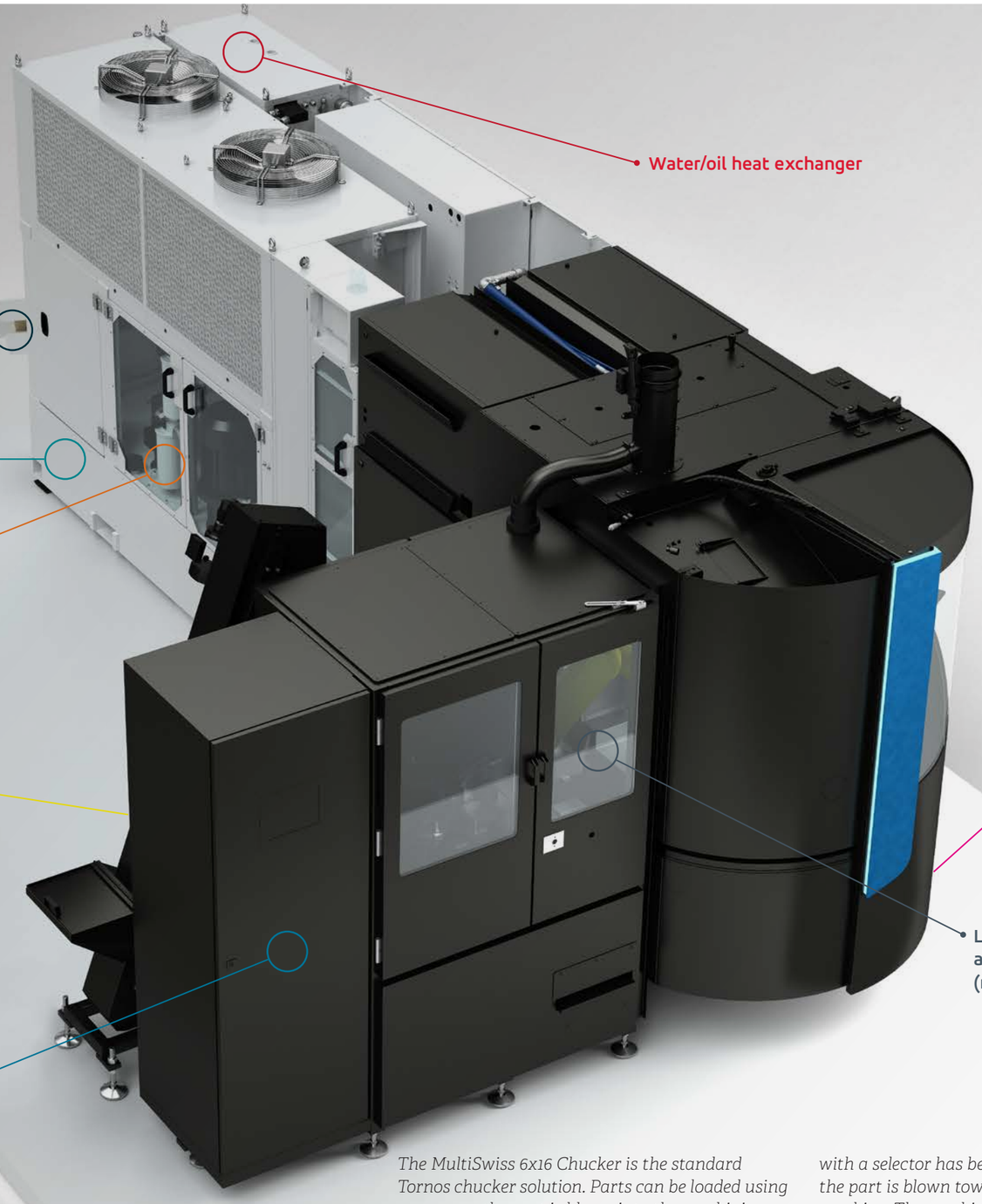
6 spindles

Max. no. of tools 23

50 mm maximum diameter

**MultiSwiss 6x32 Chucker**

# *MultiSwiss 6x16 Chucker*



Water/oil heat exchanger

Cutting oil filtration device (50 µm)

Oil tray

Spindle oil filtration device (5 µm)

Vibrating bowl

Chip conveyor

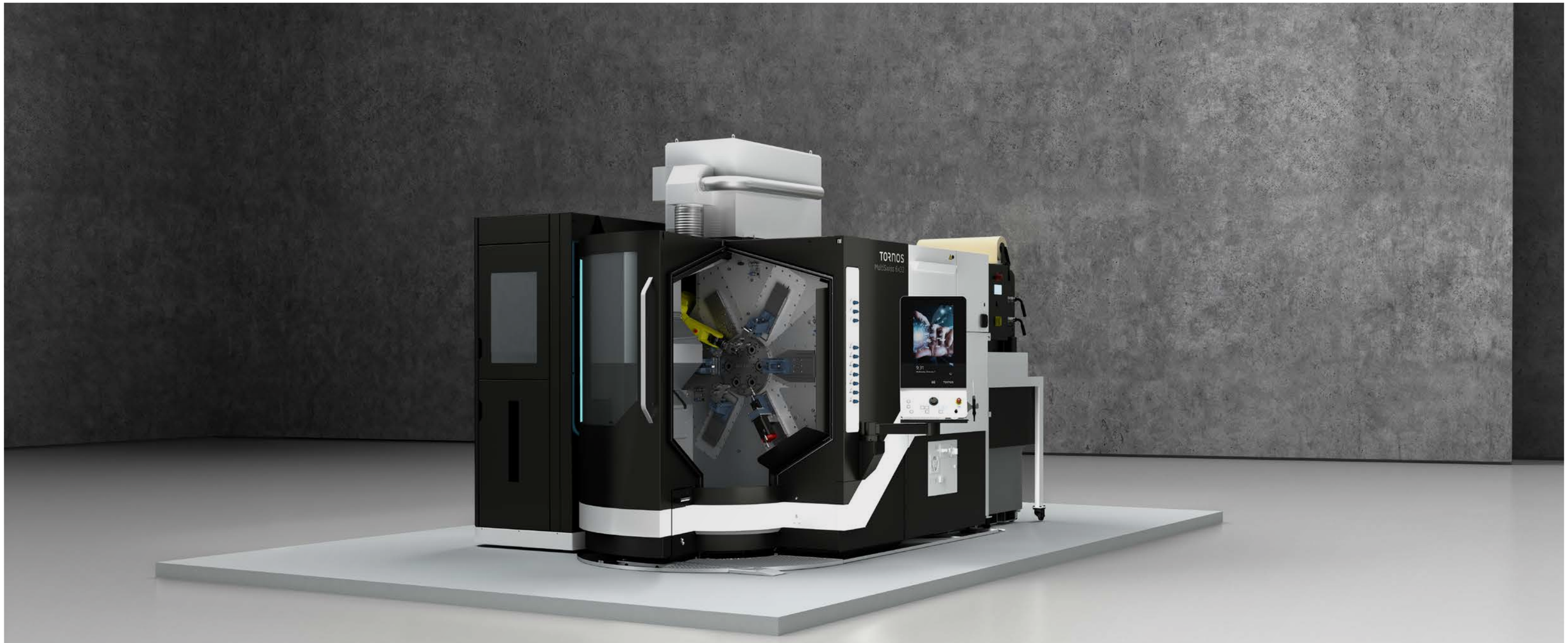
Loading in the machining area using a 6-axis robot* (machine without back spindle)

Palletisation and/or post process system*

*The MultiSwiss 6x16 Chucker is the standard Tornos chucker solution. Parts can be loaded using a vacuum: the part is blown into the machining area in a device that turns it 90 degrees in front of position five; then, thanks to the numerical axis, the spindle picks up the part and machining starts in a clockwise direction. The part is then extracted by the back spindle. A vibrating bowl with a selector has been specially adapted, and the part is blown towards the outside of the machine. The machine can be reconverted for machining from bar stock by simply removing the simple internal turning system; this approach works well for parts that do not require angular positioning and have dimensions up to 15 mm.*

* Option

# *MultiSwiss 6x32 Chucker*




**Ultra compact, ultra efficient and ultra quick**

*The new MultiSwiss 6x32 Chucker is capable of machining parts from 5 mm to 50 mm in diameter.*

*It delivers four key benefits:*

- *The spindles allow different clamping systems to be used for push collets, pull collets or chucks. This means that it is possible to grip parts which are larger than 32 mm.*
- *More compact machine body to conserve floor space*
- *Integration of through-spindle cooling*
- *High-performance automation system, less than 6 seconds for loading/unloading operations*

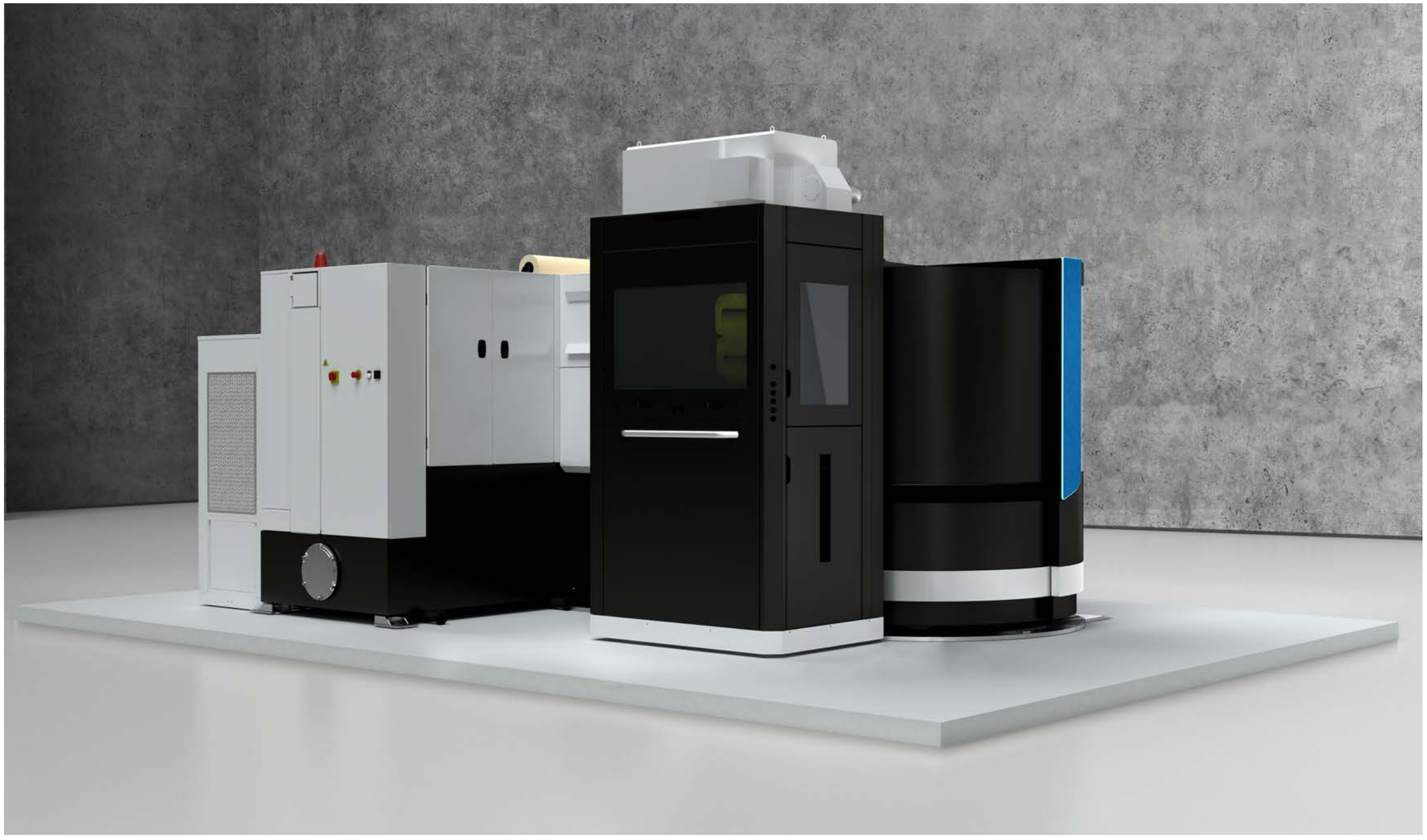
*With the same kinematics as the MultiSwiss 6x32, the MultiSwiss 6x32 Chucker has six spindles, and can be equipped with up to three Y axes, and four secondary operation tools. Part handling, cleaning and measuring can also be integrated into one elegant, compact, well-designed solution.*

# *Seamless integration*

## Compact

**Cutting-edge automation**
*A robotised solution integrated in the machine for loading/unloading parts via a small carousel that separates the machining area from the palletisation unit. This extremely modular solution is designed to accommodate the users' needs, according to the parts to be machined or operations to be performed. Single or double gripper unloading via the robot or standard unloading with the ramp are easily accommodated.*

**Clamping solutions**
*For the main spindles and back spindle, a collet system is used to clamp blanks up to 32 mm in diameter (approx. four times the diameter/length ratio to be produced). A chuck system can be used for larger parts up to 50 mm in diameter and 50 mm in length.*
*Depending on the part's mechanical sensitivity, force adjustment is possible. The spindle has an internal fixed stop. Unlike the competition, Tornos' solution requires no mechanical adjustment as all the spindles are controlled by independent axes that can be numerically offset through a parameter table. Furthermore, low- or high-pressure flushing is available during machining as well as during loading/unloading.*



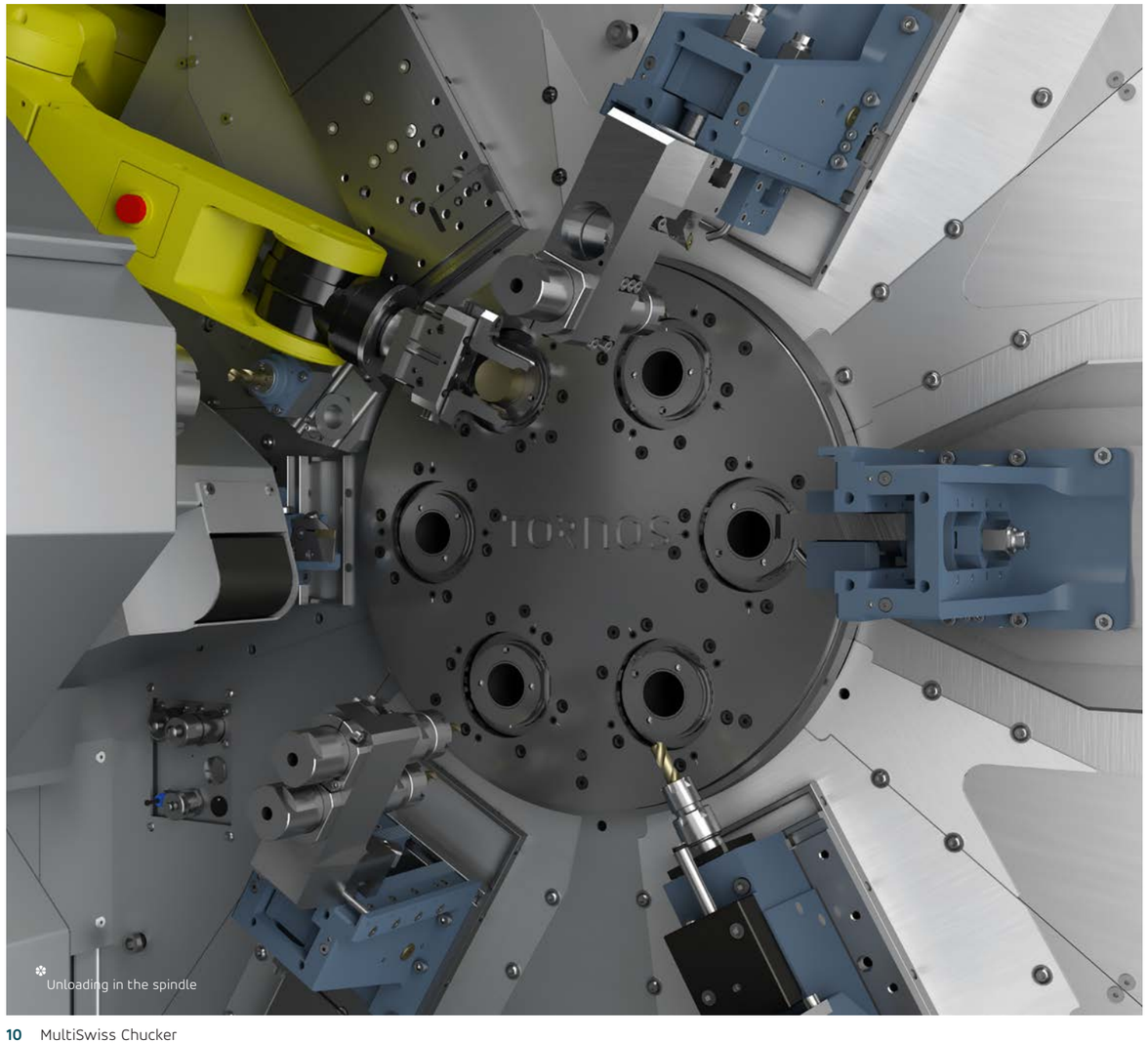
# *MultiSwiss 6x32 Chucker*

**Internal and external handling**

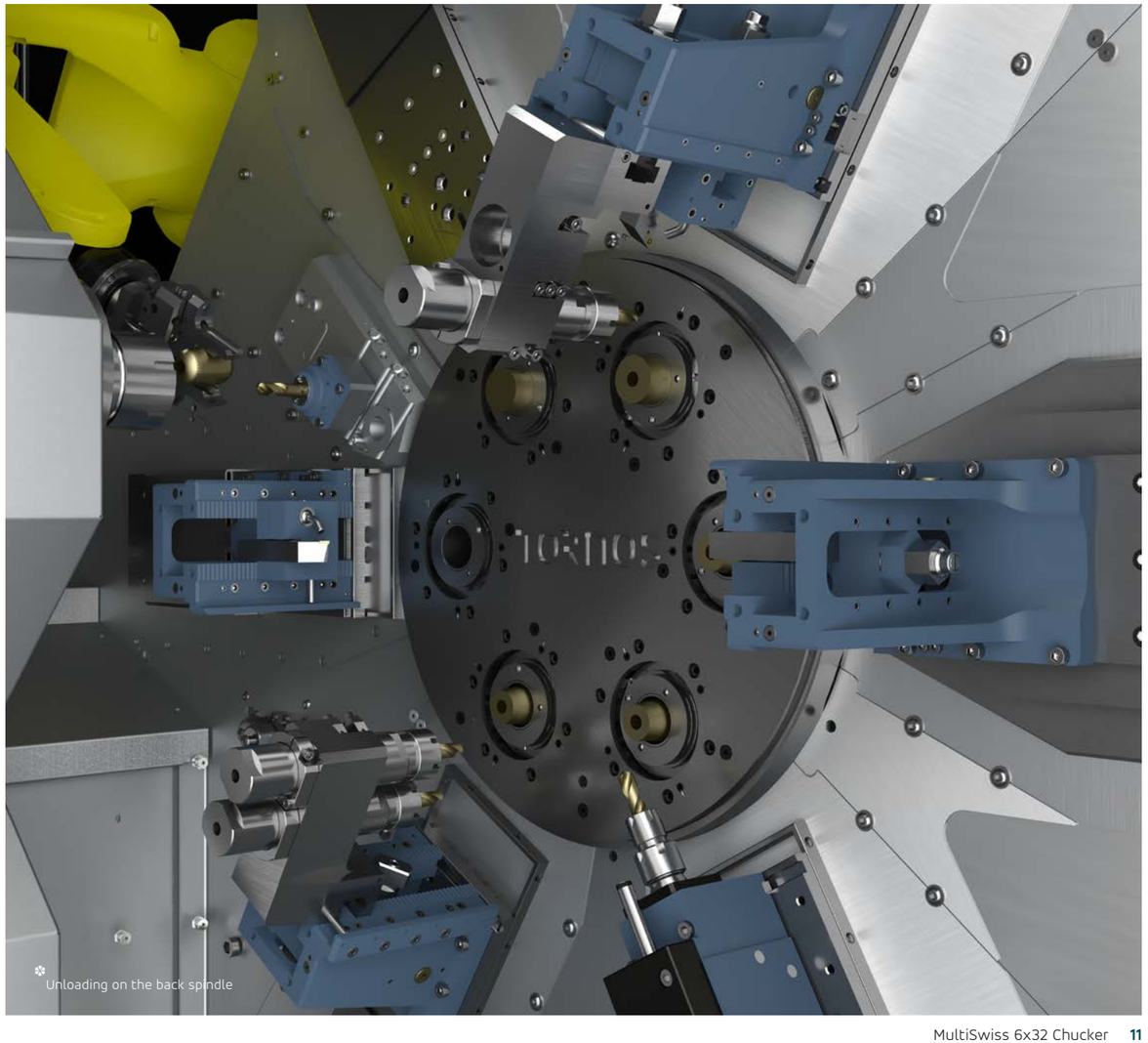
*A complete range of handling options adds even more value and autonomy for customers who turn to the MultiSwiss 6x32 Chucker as their chucker machining solution of choice.*
*Two different loading systems are available:*

- *Unloading can be performed via the back spindle as with a standard MultiSwiss machine.*
- *Unloading can also be performed with a robot either out of the main spindle (no need for secondary operation) or from the secondary operation if the user prefers palletisation of the part. When the robot is used for unloading and palletisation of the part, a swivelling carousel is used and separates the machining area and the palletisation unit, where a second robot loads and unloads from the swivelling carousel, thereby ensuring a faster, cleaner solution.*

## Loading in less than 6 seconds

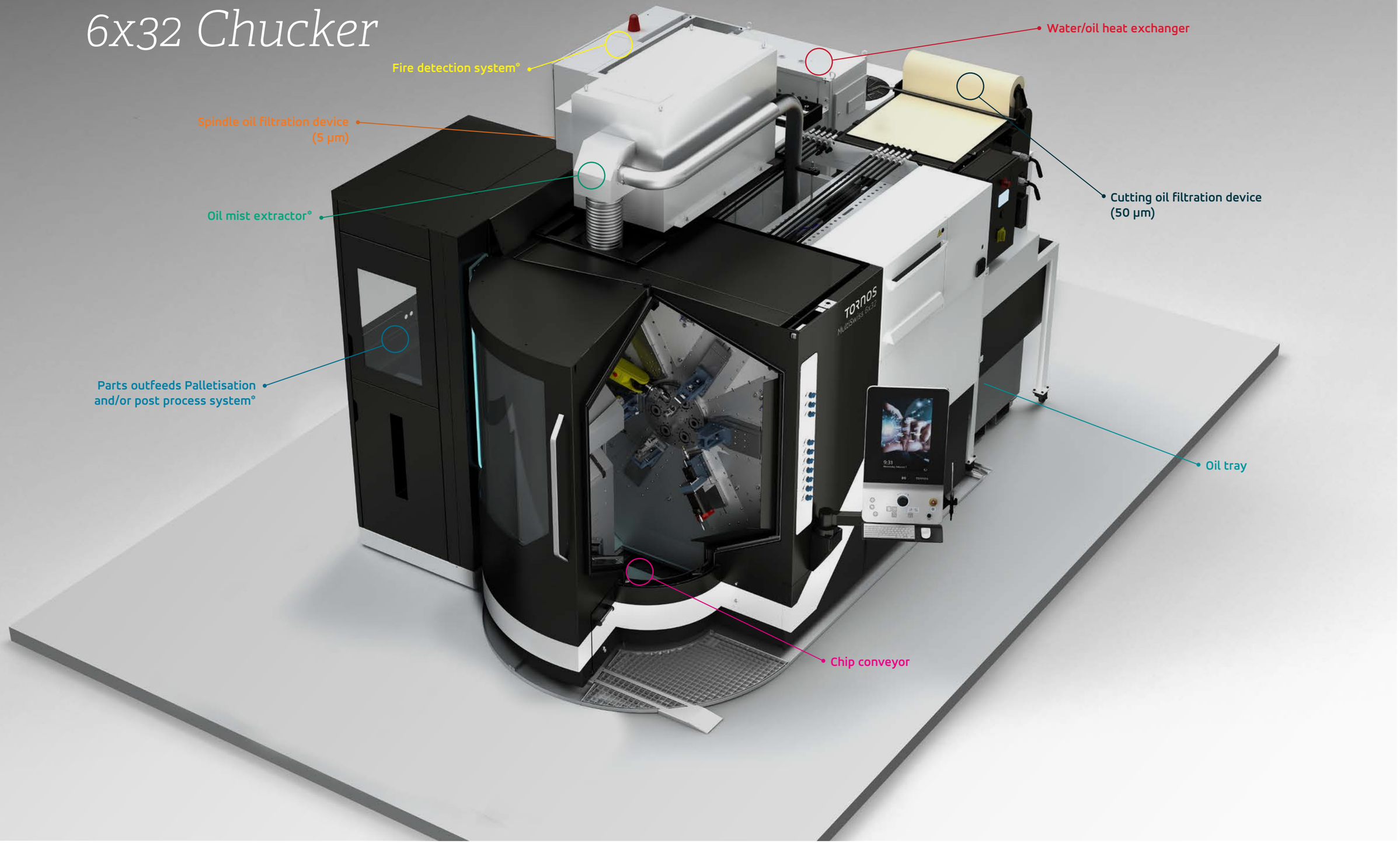


Unloading in the spindle



Unloading on the back spindle

# *MultiSwiss 6x32 Chucker*




* Option


# *TISIS and TB-DECO: Programming and communicating with your Multi-Swiss machine*

## Experience programming intelligence

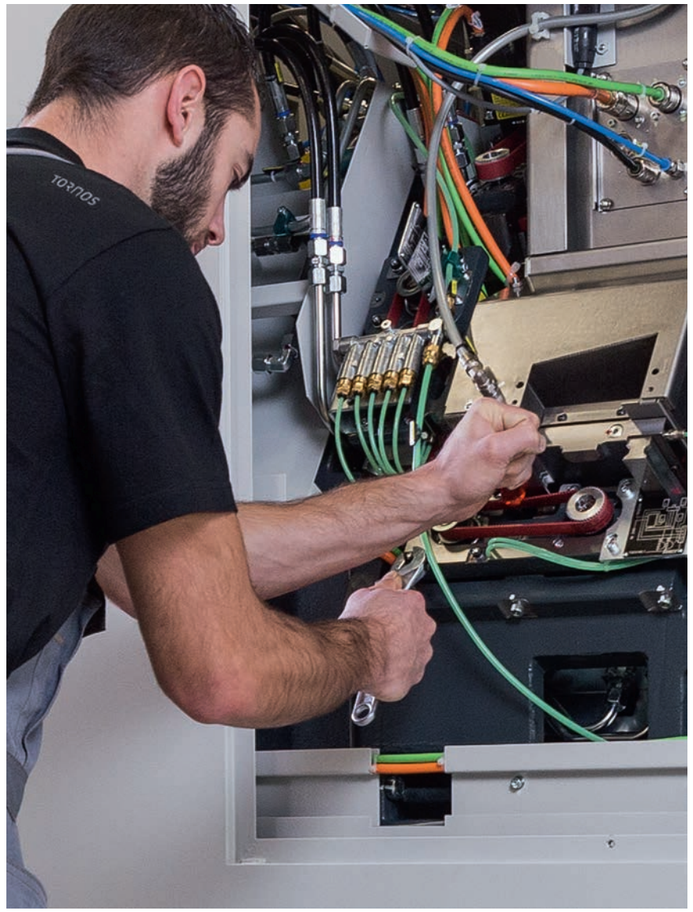
*In today's competitive global marketplace, there's not a moment to waste in meeting customers' demands. Our available TISIS communication and our TB-DECO programming software put you on the fast track to truly effortless programming and real-time process monitoring. But that's not all: TB-DECO enables you to assess each machine's options, reduces the risk of collisions and the resulting downtimes, and improves your production efficiency. TB-DECO is a programming assistance system which generates tables to control the paths of each axis and spindle, firmly based on the operation of a cam-type machine. To enable this, it is equipped with a powerful computer with an integrated interpolator and a machine simulator. The software enables the operator to visually position the operations on a timeline, and to generate a more efficient code for the CNC. It works in the same way as the editing software used by amateur filmmakers, and makes it very easy to position operations in the desired location. Since tools already exist in their database with geometric details, the desired movements just need to be indicated using the ISO code.*

## Industry 4.0

*At the same time, TISIS takes the complexity out of process monitoring, enabling you to take your first steps into the Industry 4.0 universe. Even from a remote location, you can keep an eye on the details of the machining process from your smartphone or tablet. The software also enables you to quickly transfer your programs, either by USB key or directly onto the machine via your company network. Your parts designs in various stages of completion can be stored with your program. These can then be easily found in the database using a search function.*

Discover the TISIS video

# 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 the 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

# *Technical specifications*

| TECHNICAL SPECIFICATIONS | | | **MultiSwiss 6x16 Chucker** | **MultiSwiss 6x32 Chucker** |
|---|---|---|---|---|
| Bar capacity | | mm | 16 | 32 |
| Max. part length | | mm | 40 | – |
| Max. remnant length | | mm | 70 | – |
| Max. diameter with chuck system | | mm | – | 50 |
| Max. part length with chuck system | | mm | – | 50 |
| Barrel indexing time | | sec. | 0.40 | 0.50 |
| Max. spindle speed | | rpm | 8000 | 6000 |
| Spindle output | | kW | 5.60 | 11.00 |
| Spindle torque | | Nm | 7.5/10.2 | 20/27.5 |
| Back spindle max. speed | | rpm | 8000 | 8000 |
| Back spindle motor output | | kW | 5.00 | 11.00 |
| Back spindle motor torque | | Nm | 8.00/10.00 | 12.0/15.5 |
| Spindle Z stroke | | mm | 50 | 75 |
| Back spindle Z stroke | | mm | 150 | 150 |
| Number of linear axes | | | 15 | 17 |
| Number of Y axis | | | 1 (option) | 3 (option) |
| Number of rotating axes (C axis) | | | 6+1 (option) | 8+1 |
| Number of cross slides in main operation | | | 5+1 (cutting) | 5+1 (cutting) |
| X stroke of cross slides for main operation | | mm | 40 | 80 |
| X stroke of cross slides for main operation with Y axis | | | 55 | 55 |
| Y stroke of the transverse slide for main operation | | mm | 30 | 33 |
| X stroke of cross slides for secondary operation | | mm | 75 | 170 |
| Z stroke of cross slides for secondary operation | | mm | 150 | 150 |
| Max number of tools | | | 18 | 23 |
| Max. number of tools for secondary operation | | | 2 | 4 |
| Max. number of rotating tools for secondary operation | | | 1 | 2 |
| Spindle cooling | | | Oil | Oil |
| Cutting oil filtration | | µm | 50 | 50 |
| Oil tank capacity | | l | 900 | 2000 |
| Standard cutting oil pump: | outlet pressure | bar | 4.30 | 4.50 |
| | flow rate | rpm | 100 | 140 |
| High-pressure pump (options): | a) outlet pressure | bar | 40 | 40 |
| | flow rate | rpm | 37 | 37 |
| | b) outlet pressure | bar | 80 | 80 |
| | flow rate | rpm | 36 | 36 |
| Max. length | | mm | 6283 | 4550 |
| Max. width | | mm | 1435 | 3220 |
| Max. height | | mm | 3064 | 2270 |
| Weight | | kg | 7000 | 14,800 |
| Installed power | | KVA | 70 | 114 |
| Numerical control | | | Fanuc | Fanuc |
| Programming system | | | TB-DECO ADV | TB-DECO ADV |

We keep you turning

tornos.com

TORNOS SA

Rue Industrielle 111
CH-2740 Moutier
Tel. +41 (0)32 494 44 44
contact@tornos.com

Tornos
throughout
the world



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