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"Tornos is synonymous with high precision and aligns with our core strength and fits in our strategic partnership principle."

Prashant Kore, Managing Director, SFS Group India Pvt. Ltd.

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SUMMARY

“Behind every project stands a team of experienced engineers, passionate about technology and closely connected to the realities of the shop floor.”

Thomas Dietlin, Project Manager – Specific Development

Customization in the service of performance

Thomas Dietlin, Project Manager – Specific Development

At Tornos, we know that a high-performance machine is more than just a set of technical specifications. Its true value is revealed when it integrates seamlessly into the customer's production environment, considering their constraints, working practices, peripheral equipment, and performance objectives.

This is precisely the mission of our Special Development team in Moutier. Every day, we work on a wide variety of requests, ranging from the integration of a specific peripheral device to the implementation of far more advanced solutions. Whether it is a high-pressure pump already used in a customer's workshop, a dedicated filtration system, a gravity feeding solution, a robotic cell, a measuring device, or an automatic correction system, our role is to analyze each requirement and deliver a reliable, coherent, and sustainable solution.

This broad range of solutions illustrates one of Tornos' greatest strengths: customization. Our machines already offer numerous standard options, but some projects require us to go further. In these cases, we can adapt the solution to the customer's process, whether on multispindle machines or on more compact platforms such as the Swiss DT and Swiss GT.

Automation also plays an increasingly important role in these developments. It helps improve production autonomy, stability, and repeatability. Combined with measurement, inspection, or closed-loop manufacturing solutions, it paves the way for safer, smarter, and more controlled manufacturing processes.

Behind every project stands a team of experienced engineers, passionate about technology and closely connected to the realities of the shop floor. Their in-depth knowledge of Tornos machines enables us to transform a specific request into a genuine production advantage.

This ability to listen, adapt, and innovate is what defines the strength of our approach. In Moutier, we do not simply offer machines; we work alongside our customers to build solutions tailored to the challenges they face today and those they will encounter tomorrow.

DVF DÉCOLLETAGE:

a story of family,

precision and continuity

In Scionzier, nestled in France's Arve Valley, DVF Décolletage embodies a certain vision of industry: demanding, committed and deeply human. Founded in 1984 by their father, the company is now managed by brothers Vincent and Martial Valero, who continue to develop this family business with the same rigor while firmly positioning it for the future.

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Family continuity rooted in the local area

The story of DVF Décolletage began modestly, in a garage, with two machines and a strong conviction: understanding the customer's needs in order to provide reliable and sustainable solutions. Forty years later, the company has grown, moved into new premises, invested, and recruited new talent, while maintaining its identity.

"We took over the company in 2015 with the ambition of developing it further, without breaking away from what our father had built," explained Vincent Valero. In 2019, DVF Décolletage moved into its current facility in Scionzier, a decision driven both by the need for more space and by a strong attachment to the region and its historic expertise.

Versatile know-how serving demanding industries

Historically specialized in subcontracting for Swiss-type turning, DVF Décolletage has gradually expanded its scope of activity over the years, sometimes going against market trends. Automotive, household appliances, fastening systems, aerospace, defense and luxury industries: The diversity of these sectors requires a high level of adaptability.

"Our strength lies in understanding exactly what the customer expects and delivering finished parts ready to be integrated into their final product," Vincent Valero said. This comprehensive approach also includes the ability to supply assembled component sets, simplifying the customer's value chain.

Machines at the heart of performance

DVF Décolletage's machine park reflects this evolution. Some older machines, particularly multispindle models such as the AS 14, SAS 16 and BS 20, bear witness to the company's history and to the durability of machines designed to last. Today, they operate alongside the latest generation of sliding headstock automatic lathes, which play a key role in the company's current industrial strategy.

Tornos Swiss DT and Swiss GT machines occupy a central position. Their rigid design, large machining area and ability to combine several operations on a single machine provide DVF Décolletage with great flexibility in producing complex parts, while ensuring stability and repeatability. Some configurations

“The rigidity and stability of these machines allow us to guarantee flawless surface finishes, even on demanding production runs.”

also include high-pressure solutions that secure the machining of demanding materials and contribute to efficient chip control.
Their versatility allows DVF Décolletage to meet a wide range of specifications, whether for technical parts requiring tight tolerances or for components where surface finish and visual appearance are critical.

“The rigidity and stability of these machines allow us to guarantee flawless surface finishes, even on demanding production runs,” explained Martial Valero, who is responsible for programming, setup and quality.

Versatility and precision without compromise

The versatility of the Swiss DT and Swiss GT machines plays a key role in DVF Décolletage’s growth dynamic. More than simple production tools, these machines open up new possibilities.
“When you discover everything that can technically be achieved on these machines, you realize that

Vincent (left) and Martial Valero (right) continue to develop DVF Décolletage by combining family heritage, technical expertise and innovation.

the range of parts we can produce can expand far beyond what we used to manufacture," Martial Valero noted. The ability to combine complex operations, work with different materials and maintain consistent quality makes it possible to consider projects that were previously out of reach.

This versatility has become a true strategic driver. It positions DVF Décolletage to explore new and sometimes unexpected markets and to meet a wider variety of specifications without disrupting the balance of the workshop or multiplying investments.

"These machines give us confidence. They allow us to target markets we would never have considered before, while maintaining a high level of process reliability and control," Martial Valero added.

DVF Décolletage notably relies on Tornos' TISIS software for programming and cycle optimization to helps anticipate production times and secure decision-making.

A trusted relationship with Tornos

The collaboration with Tornos has been built over time and is based on a close relationship of trust with Tornos France. It began during their father's time and naturally continues with the new generation. "When we have a requirement, our first instinct is to look at what Tornos can offer. There would really have to be no suitable solution for us to go elsewhere," Vincent Valero said.

Beyond the machines themselves, the geographical proximity of Tornos France, the responsiveness of the service teams and the training support all play a decisive role. For DVF Décolletage, the availability of the teams, fast response times and the quality of technical support are integral parts of overall performance.

"Knowing that we can rely on efficient and nearby support, both for technical assistance and advice, is a real source of confidence in our daily operations," the company's managers emphasized.

Growing without losing the family spirit

With a team of around 10 employees, DVF Décolletage maintains a strong culture of proximity and responsibility.

"We want to remain a family-run company, even as we grow. It is important that everyone finds meaning in their work and sees themselves here for the long term," Vincent Valero said.

Training plays a central role: Apprenticeships, internal support and partnerships with specialized training centers help maintain and develop skills. This focus on people is also a key factor in attracting talent at a time when recruiting qualified profiles remains a challenge for the industry.

Discover our video report

A new milestone with the integration of Bourqui

In autumn 2025, DVF Décolletage reached a new milestone with the acquisition of Bourqui, another Haute-Savoie-based company employing around 20 people. Specialized in spacers and fastening components, this family business will strengthen DVF Décolletage's overall offering. In the long term, both entities will be brought together under one roof, with the ambition of creating industrial and organizational synergies.

"This project is part of a strategy focused on continuity and sustainable development," Vincent Valero explained. "The objective is to offer even more comprehensive solutions while remaining true to our values."

Looking ahead

Today, DVF Décolletage is moving forward with a clear vision: continuing its development, progressively investing in modern equipment and strengthening its position in demanding markets.
Driven by the complementary expertise of two brothers with distinct skill sets, the company continues to write its story at the crossroads of heritage and innovation.
In the Arve Valley, DVF Décolletage demonstrates that it is possible to combine industrial tradition, cutting-edge technology and family spirit—a valuable balance serving precision engineering.

dvf-decolletage.fr


SMITHSTOWN
LIGHT ENGINEERING

Starrag drives manufacturing excellence

at Smithstown

Nestled in Shannon, Ireland, Smithstown Light Engineering has experienced a remarkable transformation over the past 50 years. Founded in 1974 as a traditional toolmaking business under the leadership of Brian King, it has grown into a global medical device powerhouse with over 300 employees. Today, with three sites across Ireland and Poland, the company produces millions of precision components each year, with the Starrag Bumotec 191^{neo} taking its place as the cornerstone of its new product introduction (NPI) strategy.

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"Brian King was a champion toolmaker in Ireland, winning awards and building a reputation for precision and quality" explains Gerard Henn, CEO of Smithstown Light Engineering. "That customer-focused philosophy, where you could call him at 10 p.m. with a problem, and he'd be there the next day; that's the foundation we've based everything on."

When Brian King's son Gerard became Managing Director in 2011, he recognized the cyclical nature of toolmaking was challenging especially after the 2008

> “When there’s a supplier review meeting in the US or wherever, we’re often invited to bid. Our name moves around based on our reputation.”
>
> **Gerard Henn,**
> CEO Smithstown Light Engineering

recession. Already involved in clamps, fixtures, and instrumentation for surgical procedures that provided a repeat business model, a change of direction was being surgically strategized. “In 2018, we were still making mold tools, but the decision was clear. We exited mold tools to focus on medical device manufacturing.”

Ireland’s medical device landscape

The west coast of Ireland has established itself as a European hub for medical device manufacturing, with major players including Stryker, Zimmer, DePuy Synthes, Boston Scientific and Medtronic all maintaining significant operations on the Emerald Isle.

Today, approximately 90 % of Smithstown’s business comes from Ireland-based operations, with the remaining 10 % split between the United States (US) and Central America. However, that international percentage is growing as the reputation spreads. “When there’s a supplier review meeting in the US or wherever, we’re often invited to bid. Our name moves around based on our reputation,” Gerard Henn notes.

Shrinking components and tighter tolerances

With medical device components getting smaller, more complex and requiring tighter tolerances that pushed traditional manufacturing approaches to the limits, Smithstown set about acquiring suitable machine tools like the Starrag Bumotec 191^{neo}. This was because parts that once measured more than 100 mm were shrinking to dimensions requiring magnification to inspect.

“If you look at some of the components we are making now, you literally need glasses to see them properly. These are complex medical devices with multiple operations like cross-drilling, chamfering, tight internal radii, and critical surface finishes both inside and out. Many require tolerances in the 3–5 micron range on production runs, not just prototypes,” Henn continues.

“Four or five years ago, we would break into our manufacturing resource to make customer prototypes. What was supposed to be two days often became four weeks with a production machine out of manufacturing for a month,” Henn recalls.

With 10 to 15 NPI programs running simultaneously across both the Shannon facility and Poland, the constant interruption to manufacturing was challenging. “We weren’t making our numbers. We’d lose two weeks here or six weeks there. Something had to change.”

A dedicated NPI facility

The solution required both organizational and technological change. Smithstown established a dedicated NPI department with its own equipment, separate from production manufacturing. However, the specified equipment needed to handle the most complex geometries possible. This is where the Starrag Bumotec 191^{neo} stepped up to the plate with its 60-tool changer, main spindle and retake vice, and the 12.2 kW, 36,000 rpm B-axis machining head. “We needed something for all the multiple operations. Something that could handle very complex geometries with tight tolerances.”

Dr. Gerard Henn, CEO Smithstown Light Engineering
Flávio DeCampos, NPI Manufacturing Manager.

“With the Bumotec 191neo, you’re putting a five-axis inside of a turning center. This gives you the capability to handle complex parts with the tightest of tolerances. In one machine platform, there are twelve possible configurations where you can have up to seven axes and three spindles.”

Flávio DeCampos,
NPI Manufacturing Manager

Smithstown’s technical team, many with 25 to 35 years of experience, attended exhibitions like EMO and maintained dialogue with suppliers. Starrag emerged as a potentially key supplier for several compelling reasons. Aside from the brand prestige in multiple industry sectors, one reason was the medical industry reference customers in Ireland and a machine permanently located at the Irish Manufacturing Research (IMR) facility. “We started asking questions like, what’s your service level? What’s your warranty? How many machines do you have in Ireland?”

Why the Starrag Bumotec 191neo?

The relationship developed gradually over several years before an order was placed. Alexandre Gelfer, Starrag Vuadens SA’s representative for the United Kingdom (UK) and Ireland, played a crucial role. “We showed Alexandre a range of parts, and we wanted a machine that could cover most of that range,” notes Flávio DeCampos, Smithstown’s Manufacturing and NPI Leader.

Several key factors drove the final decision to order the Starrag Bumotec 191neo in January 2025. First was the machine’s fundamental capability of a five-axis machining center integrated into a turning environment. “With the Bumotec 191neo, you’re putting a five-axis inside of a turning center. This gives you the capability to handle complex parts with the tightest of tolerances. In one machine platform, there are twelve possible configurations where you can have up to seven axes and three spindles,” DeCampos explains.

Second was the compact footprint relative to its work envelope. Third was flexibility for unknown future requirements. “We needed the Rolls-Royce of machines for NPI work, the Starrag Bumotec 191neo is certainly that machine. We knew the first NPI machine would be the center point for future operations, and only a brand as prestigious as Starrag would deliver that,” Henn emphasizes.

“We really drilled into everything with Starrag. We asked what the machine can do? What are the standard and special options? Throw it all at us and let us talk it through. We discussed what we needed, what was available, what they were already supplying to customers, and what they thought we should consider. We agreed on a machine with 60 tools, a main turning spindle with a B-axis milling head and a retaking unit with a vice for collecting the parts for machining the final operations.”

Strategic impact

Since delivery, the Bumotec 191neo has rapidly become the cornerstone of Smithstown's NPI strategy for the next decade. "NPI is the business for two years out. If we're not in there now and working on new products, we're not going to have any business later," Henn emphasizes.

The dedicated NPI department now functions independently, removing conflicts and delays caused by breaking into production capacity. "If NPI needs five weeks for development, that's on them. They're not affecting production, and customers don't see any impact."

The commitment to Starrag isn't a one-time investment. "We're not going to buy one this year and something different next year. We have a state-of-the-art facility with incredible technology and a growth trajectory. We will add a second Bumotec, and a third, and we'll go beyond that, as and when our business requires it."

First production experience

The first component tested on the Bumotec 191neo was a medical device for a global manufacturer. "We'd made similar pieces on a sliding head turning center, but this new part was far more complex. On turning

Headquarters of Smithstown Light Engineering in Shannon.

Jean Carlos Guedes, five-axis milling specialist

centers, we would've had multiple setups. Now it's bar stock in, and the finished part out; that has to be the case with complex, tight-tolerance components. We can't afford to do second operations on machining centers, as we have in the past."

The geometry of these parts pushes boundaries. "We're talking about profile tolerances of 3–5 microns on what will eventually be production parts. On other machines, we wouldn't be able to hold that. We can hold those tolerances with the Bumotec, even when doing complex production machining," DeCampos notes.

The medical component has undergone nine design iterations. "There's been eight design changes in six months. We've been producing batches of 5,000-off through each of these iterations. We needed a machine capable of handling that variability from the start—and now we have it. When it enters full

production, we could be talking about 10 to 20 million parts, but in the medical sector, this commercial work might be a few years away. When that time comes, we must have our processes 100 % nailed-on to maintain the extremely tight tolerances required for volume production. The Bumotec provides us with that process stability and precision that most machines cannot match, while offering the flexibility to complete complex parts in a single process," says Henn.

Outstanding performance

The Smithstown team has experience in using some of the most prestigious machine tool brands in the market, but Bumotec has genuinely impressed. "The consistency is what stands out. Holding tight micron tolerances with all the kinematics running is an area where other machines start to lose consistency, not on the Bumotec 191^{neo}."

This capability has changed Smithstown's approach. "Some tapers have such tight profile tolerances, we question whether this should be a milling or grinding operation, but the Bumotec handles it all in its stride," says DeCampos.

The machine runs two shifts, with 24-hour capability when needed. Current cycle times are around 15 minutes per part. "We're confident we could work at least 20 % faster and maybe cut cycle times by upwards of 30 % when we're more experienced with the machine and strategies," says DeCampos.

Installation, commissioning and training

Commissioning preceded smoothly with support from Stefan Narnhofer, Starrag's commissioning engineer. "Stefan was phenomenal. He was so fastidious and dedicated. What more do you want from a supplier?" Henn adds.

Narnhofer participated in the factory acceptance test, installation, commissioning, and returned for CAM refinements. We maintained continuity: the same guy who understood our operations and processes," Gerard Henn continues. The training program was equally effective for the three staff members operating the machine. "One thing that stands out is how user friendly the HMI is. To understand all the axes clearly when the milling head moves around exemplifies how easy it is to use. The difference compared to other machines is considerable, and the graphic display is incredibly intuitive," Flávio DeCampos explains.

> "As every customer wants to push the boundaries of what is possible – and the Bumotec allows us to do that."
>
> **Gerard Henn,**
> CEO Smithstown Light Engineering

This intuitive interface significantly reduced the learning curve. "The guy did one week of training and was able to come back and start cutting parts immediately," DeCampos notes.

The learning curve ahead

Both Henn and DeCampos are candid about being early in the learning journey. "There's a lot to learn about how to get more out of the machine," DeCampos acknowledges.

This sparked discussions about advanced training. "I rang Claude Ballif, Sales Manager at Starrag Vuadens, and asked how we drive this technology forward, and Claude's immediate response was that every customer returns for a second phase of learning when they are competent with the machine. As every customer wants to push the boundaries of what is possible - and the Bumotec allows us to do that," adds Henn.

Ballif explained that users initially program based on experience with other machine types. "Bumotec is far more powerful than that. Users need to change their strategies and approach machining from a completely new direction of boundless possibilities," Gerard Henn says.

DeCampos agrees: "The guy programming the machine came from a five-axis background. For guys using five-axis, they're focused on milling and don't think about turning in the same machine, this effectively requires a mindset change by both our machinists and our development teams."

Looking back, Henn is emphatic in his praise: "I can't do anything but complement Starrag. The dialogue, the patience, transparency and responsiveness all stand out. For our project engineering team, the Bumotec 191^{neo} is becoming the first-choice machine for complex medical device components."

Conclusion

The strategic decision to establish a dedicated NPI department, along with investment in Starrag Bumotec 191^{neo} technology, positions the company for ongoing growth in one of the world's most demanding manufacturing sectors. "You hear lots of great things about the Swiss watchmaking industry and how heavily involved Starrag are. When I look at some of our parts on a CAD screen and the minuscule dimensions, I can see why. The ability to throw anything at this machine is fantastic," Henn continues.

With tens of millions of components produced annually and an expanding presence across Ireland and Poland, Smithstown has a clear strategy, and the addition of more Bumotec machine tools in the future is assured. "If we are not at the table for the next bid, if we can't handle the most complex parts our customers can envision, we're not going to be in business in five years. The Bumotec gives us that capability. It's the Rolls-Royce of our NPI operation, and as we learn more about what it can do, it's going to help us win the programs that keep this business growing for the next 50 years," concludes Henn.

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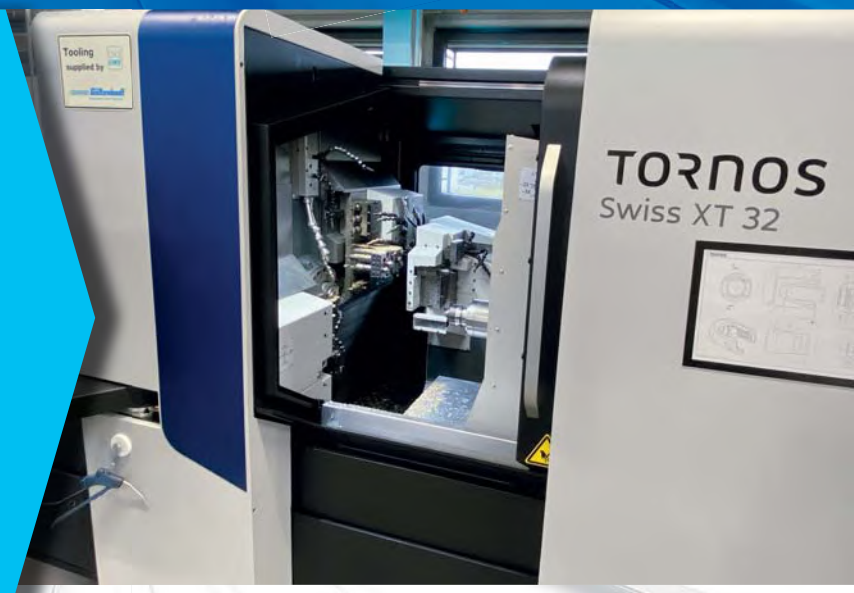

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CLOSED-LOOP MANUFACTURING:

turning expertise

into consistent performance

The precision turning industry is facing a sharp rise in competitiveness, driven by increasing customer demands and tighter production constraints. As machines become more advanced and technically sophisticated, the skills required to operate and optimize them continue to grow.

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Skilled operators remain at the heart of manufacturing performance. Yet finding and retaining qualified talent is becoming increasingly challenging. This imbalance is reshaping how workshops approach productivity and efficiency.

On the shop floor, this reality is already being felt
"Today, I'm in charge of six machines, and between setups, inspections, and maintenance, I'm hitting my limits. Even with a junior operator I'm training, when it comes to checking complex parts, they can't yet handle all the adjustments required to keep production running continuously."

Closed-loop manufacturing (CLM) emerges as a direct response to this growing pressure, where operators must do more with less while maintaining ever tighter tolerances. By connecting measurement systems directly to machine tools, CLM converts measured values into tool corrections automatically, applied in real time without manual intervention. This closed feedback loop reduces setup time, scrap rates, and repetitive adjustments while ensuring consistent part quality throughout production. It also reshapes the role of the operator, who shifts from constantly correcting deviations to supervising a stabilized and optimized process.

This transformation is clearly reflected in operator feedback

"The impact that CLM has had on the way I work is quite significant.

I now spend more time on my PC for each part, which initially worried me. I wasn't sure I would have time for that. But in the end, I gain so much during the first-off validation and inspections that I can focus much better on my setup. And apart from configuring the part, which is new, I don't change anything else: I use the same measuring machines and the same manufacturing processes, which also makes it much easier to explain to the assistants helping me on the shop floor."

CLM integrates seamlessly into existing environments, preserving established workflows while improving their efficiency. This ease of adoption extends to less experienced personnel, as another operator explains:

"The setup operators received two days of training, while two hours were enough for us. It's easy to use: I measure the part, the results automatically appear on the screen, I check that the values are not inconsistent, and I simply click a button. I've gained more independence. I can now handle all types of parts, even the complex ones that I struggled with before."

The corrections are sent back to the machine and directly applied.

In a context where expertise is both critical and scarce, CLM offers a balanced approach between automation and human know-how. It reduces pressure on operators, helps production reach stability faster, and broadens access to precision, making it a key driver of competitiveness for modern turning workshops.

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SWISS MADE

Precision turning for the connected world:

how Tornos supports high-volume, high-precision *connector manufacturing*

The connector industry is evolving rapidly. Electrification, high-speed data transmission, medical devices, industrial automation and miniaturized electronics are increasing demand for smaller, more reliable and more complex connector components.

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Behind every charging system, sensor, surgical device, radio frequency (RF) interface or data center infrastructure lie many precision-machined contacts, sleeves, connector bodies and shielding elements that must perform flawlessly over millions of cycles.

For manufacturers, the challenge is no longer simply producing small parts. The challenge is producing increasingly complex geometries in very high volumes while maintaining stable quality, controlled cost per part and reliable unattended production.

This is where precision turning has become a strategic manufacturing process.

Small parts with demanding technical requirements

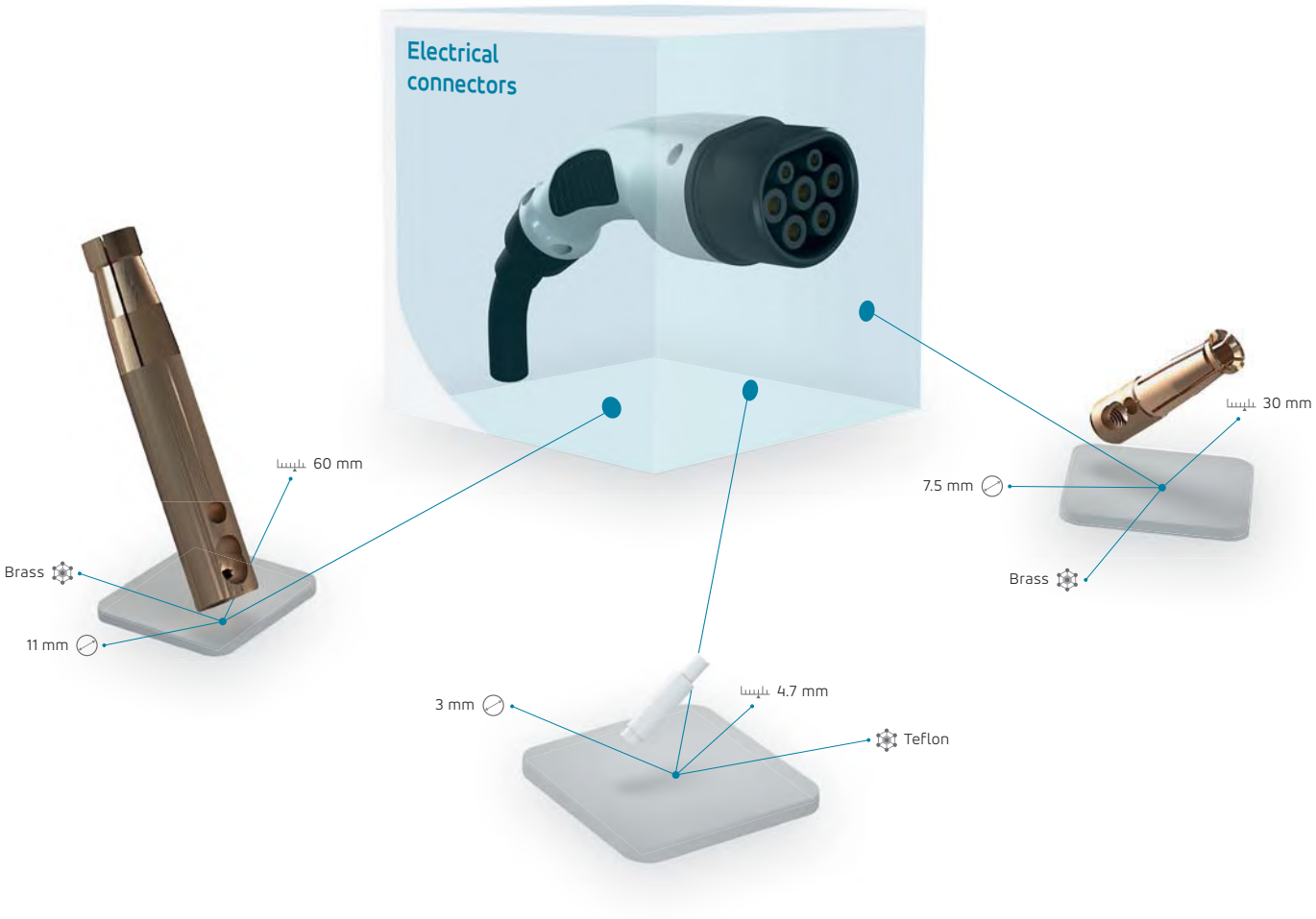
Connector components combine several machining constraints in a single part. Typical geometries include:

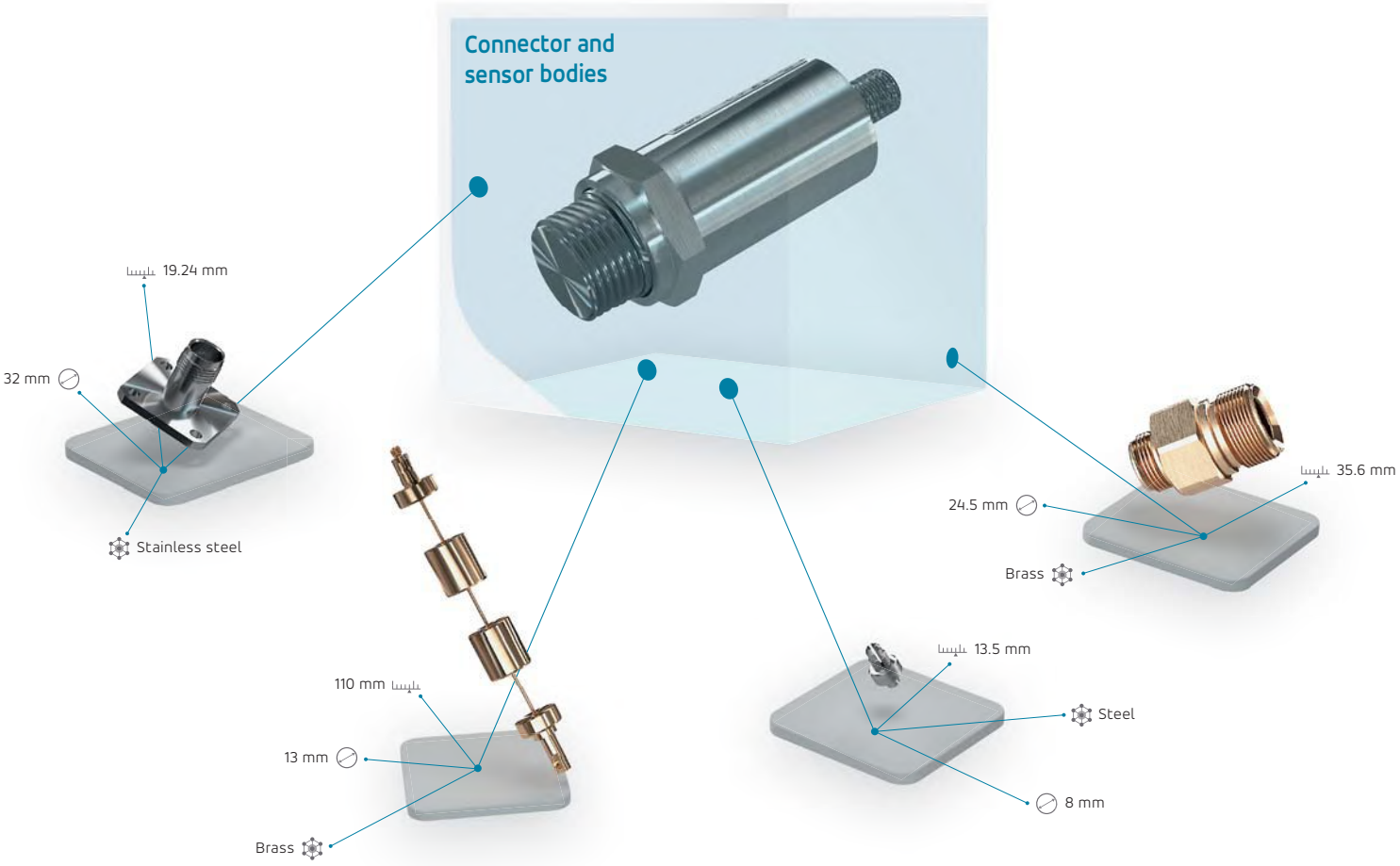
- *Miniature male and female contacts*
- *Thin-wall sleeves*
- *Connector and sensor bodies*
- *Threaded elements*
- *Shielding components*
- *RF contacts*
- *Blind holes*
- *Slots and grooves*
- *Cross holes*
- *Fine threads*
- *Polygonal forms*

Many of these parts are produced from brass, copper alloys, stainless steel, aluminum, titanium or high-performance polymers such as polyether ether ketone (PEEK). The Tornos electronics application portfolio highlights connector parts ranging from miniature contacts below 1 mm diameter to larger connector bodies and sensor housings produced in brass, copper and stainless steel.

The challenge is not only dimensional precision. Surface quality, burr control and repeatability are equally critical.

A slight burr can affect assembly. Poor surface finish can compromise plating quality. Small dimensional variations can influence electrical contact, insertion force or sealing performance.





At the same time, production volumes continue to increase. Connector manufacturers must therefore combine micron-level precision with stable productivity over long production runs.

Miniaturization changes machining priorities

The continued miniaturization of connector systems is pushing machining processes to their limits.

High-density connectors, compact medical electronics and miniature RF systems require increasingly small contact geometries while maintaining mechanical reliability and electrical performance. At these dimensions, machining stability becomes essential.

Heat generation, spindle vibration, tool deflection and chip evacuation can rapidly influence dimensional consistency. This is particularly true for contacts and microcomponents produced at diameters below 1 mm.

For these applications, machine rigidity and thermal behavior become more important than spindle power alone.

The Tornos SwissNano range was developed specifically for this type of environment. Its compact and thermally stable architecture allows highly repeatable machining of very small precision parts while maintaining excellent surface quality and stable long-term production conditions. Its six-axis kinematics also support simultaneous operations and flexible tooling configurations for complex micro parts.

For connector manufacturers, this translates into:

- *Greater dimensional stability*
- *Lower scrap rates*
- *Improved surface finishes*
- *Reduced need for manual corrections*
- *Reliable unattended production*

These factors become increasingly important as connector geometries continue to shrink.

High-speed connectivity increases quality expectations

The rise of high-speed data transmission is also transforming connector manufacturing requirements.

Artificial intelligence (AI) infrastructure, telecommunications equipment, aerospace systems and advanced medical electronics require connectors capable of transmitting increasingly large volumes of data with minimal signal loss.

In these applications, machining quality directly affects connector performance.

Concentricity, contact geometry and surface consistency all influence:

- *Impedance stability*
- *Signal integrity*
- *Insertion loss*
- *Shielding performance*
- *Long-term reliability*

This is especially important for:

- *RF connectors*
- *Coaxial contacts*
- *Fiber optic systems*
- *Miniature high-density connectors*
- *Aerospace communication interfaces*

At high frequencies, even small machining variations can influence electrical behavior. This increases demand for machine platforms capable of maintaining stable machining conditions over long production runs while delivering very high surface quality on demanding materials such as copper alloys and stainless steels.

Matching machine architecture to production objectives

Connector manufacturing includes both highly complex technical parts and large-volume standardized components. Different applications therefore require different machining strategies.

For very small precision contacts and miniature connector elements, Swiss-type machining remains particularly effective because of its guide bush support, thermal stability and ability to control slender geometries.

For more complex connector bodies requiring multiple operations in one setup, the Tornos Swiss GT platform provides the flexibility needed for drilling, milling, threading and back-working operations within a compact footprint.

These machines' modular tooling area and synchronized spindle architecture allow manufacturers to reduce secondary operations and stabilize production quality.

For high-volume turned contacts and sleeves, the Tornos MultiSwiss range provides a different advantage: productivity.

Its multispindle architecture allows several operations to run simultaneously, significantly reducing cycle times while maintaining stable dimensional consistency. This makes the platform particularly relevant for connector manufacturers producing millions of identical parts annually where cost per part becomes a decisive factor.

For highly complex parts requiring extensive simultaneous machining capability and multiple tool positions, Tornos' EvoDECO remains highly relevant. Its kinematics and tooling flexibility support complete machining strategies designed to minimize handling operations and maximize process security.

The key objective is always the same: matching the machine architecture to the application requirements, production volume and desired level of autonomy.

Process stability is now a productivity factor

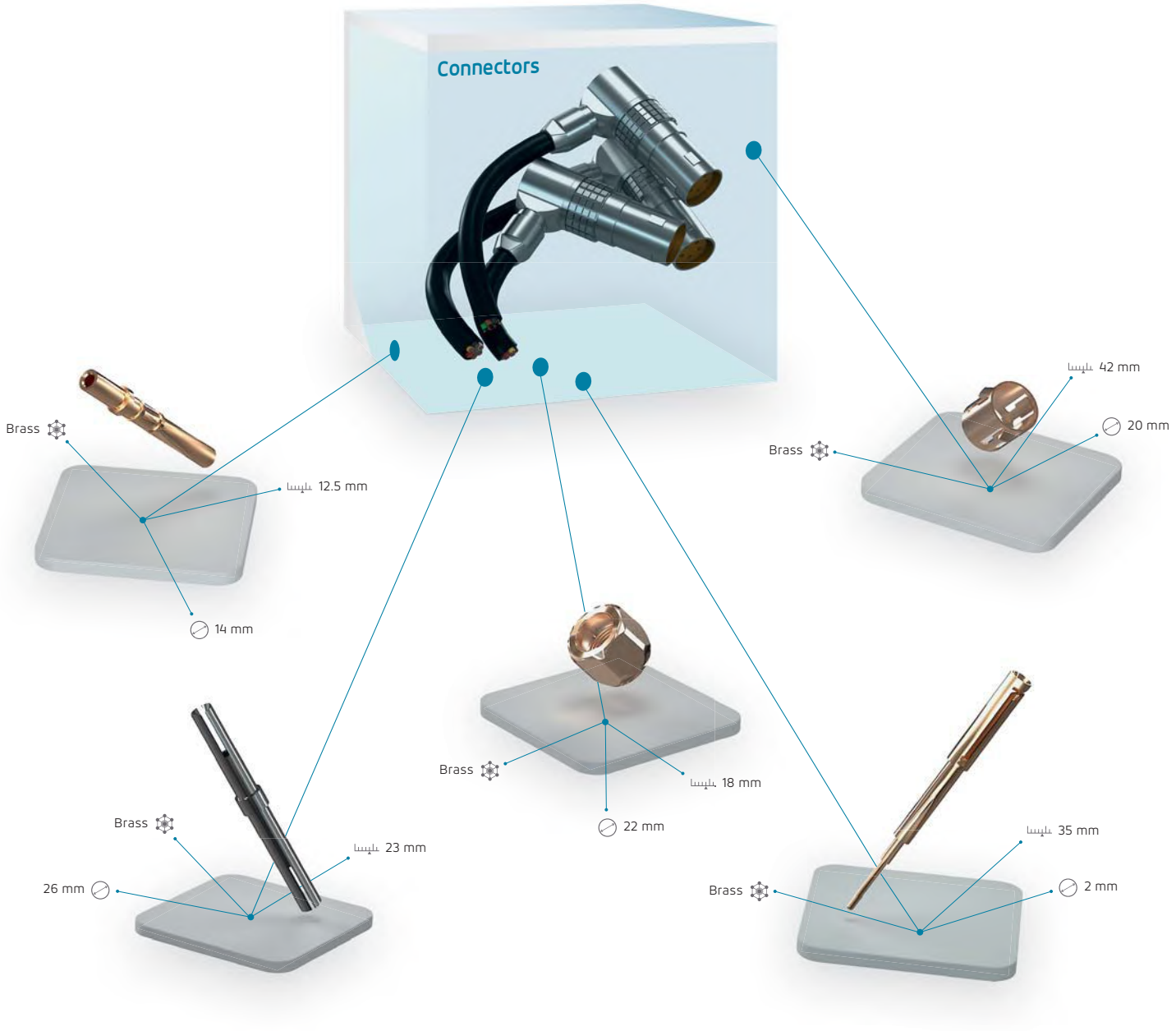
Connector manufacturers increasingly prioritize autonomous production.

Labor shortages, higher production costs and rising quality expectations are accelerating the move toward longer unattended production cycles with reduced operator intervention.

This places greater emphasis on:

- *Chip control*
- *Tool life consistency*
- *Thermal stability*
- *Process repeatability*
- *In-process correction capability*

Connector materials can make these objectives difficult to achieve. Copper alloys and stainless steels often generate long chips that can interrupt machining or damage small parts. Burr formation becomes more difficult to control on miniature geometries. Tool wear can gradually affect dimensional stability over long production runs.



This is why coolant management and chip evacuation play a major role in modern connector machining.

High-pressure coolant improves chip breaking, stabilizes cutting temperatures and extends tool life. According to Tornos electronics application data, 80-bar coolant pressure can significantly improve chip fragmentation and tool life during finishing operations.

Technologies such as Active Chip Breaker (ACB) further improve chip control and support reliable unattended production.

These capabilities are particularly important in connector manufacturing environments where even a short production interruption can affect thousands of parts.

Quality control is moving closer to the machine

Connector manufacturers increasingly integrate quality management directly into the production process.

Instead of relying only on offline inspection, modern production environments combine machining and process monitoring in closed-loop systems capable of maintaining dimensional stability throughout long production runs.

This includes:

- *Automatic wear compensation*
- *Integrated measurement systems*
- *Process monitoring*
- *Traceability*
- *Statistical process control*
- *Automatic correction loops*

For manufacturers, the objective is straightforward: Maintain stable tolerances with minimal manual intervention while reducing scrap and improving process confidence.

This is especially important for connector applications in sectors where process consistency and traceability are essential requirements:

- *Medical technology*
- *Aerospace*
- *Automotive electronics*
- *Telecommunications*
- *Industrial automation*

Long-term manufacturing value

In connector manufacturing, machine value is measured over years of production.

Cycle time, uptime, tool life, material utilization, maintenance requirements and process stability all influence the real cost of production.

This is particularly true for high-volume turned components where even small productivity gains can generate significant long-term savings.

Material utilization is also becoming increasingly important. Copper-based materials represent a substantial cost factor in many connector applications, making bar remnant reduction and stable machining conditions economically valuable.

The objective is therefore not simply producing good parts. The objective is producing good parts consistently, efficiently and predictably over very long production runs. This is where machine rigidity, stable kinematics, chip management and application-specific machining expertise become decisive.

Tornos technologies deliver value

The connector industry is evolving toward greater miniaturization, higher transmission speeds and increasing production complexity. At the same time, manufacturers must maintain stable quality, competitive cycle times and reliable unattended production across growing volumes.

These challenges place machining performance at the center of industrial competitiveness.

For applications such as miniature contacts, RF components, connector bodies and high-volume turned pins, the ability to combine precision, productivity and process stability is becoming decisive. Thermal stability, chip control, simultaneous machining capability and integrated process consistency are no longer optional advantages. They are production requirements.

This is precisely where Tornos technologies bring value.

By combining specialized Swiss-type expertise, multispindle productivity and application-focused machining solutions, Tornos supports connector manufacturers in producing increasingly demanding parts with greater efficiency and long-term process reliability.

In a market where every micron, every second and every component matter, machining strategy has become a key factor in connector performance and manufacturing success.

tornos.com

Under the leadership of Prashant Kore, SFS Group India relies on a fleet of Tornos machines to produce critical automotive components with extremely tight tolerances.

SFS GROUP INDIA AND TORNOS:

Inventing success *together*

With a fleet of 16 state-of-the-art Tornos Swiss-type and multispindle solutions at its disposal and another five on order for 2026 delivery, SFS Group India Pvt. Ltd.—a member of the international SFS Group—is well positioned to honor its brand promise: Inventing success together. Managing Director Prashant Kore explained how Tornos contributes to that mission.

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Backed by a history of providing precision-machined parts and cold-formed components to the world's most demanding customers, SFS Group India is the nation's largest manufacturer of engine valve collets, rocker arm screws, turbocharger components and assemblies, and fuel system parts and assemblies. Underpinning the company's position as a preferred partner to the automotive and turbocharger industry is its inherent understanding of the engineering principles required to manufacture those system-critical parts.

"Tornos is synonymous with high precision and aligns with our core strength and fits in our strategic partnership principle."

Prashant Kore,
Managing Director, SFS Group India Pvt. Ltd.

A complete ecosystem for precision

"Precision is what we do day to day," Kore explained. "This company got a strong start in India due to precision manufacturing. For more than 40 years, we have been proud to say that we are moving toward specialization in ultraprecision machining—a precision machining category dealing with the lowest of the lowest tolerances and the smallest of the smallest parts. We have established the complete ecosystem required for precision manufacturing."

That ecosystem comprises more than 1,200 manufacturing employees in Pune and Belagavi, a fleet of 16 high-precision Tornos machines, and the measurement technologies essential to ensuring that customers' demands for ultraprecision are met.

"We use our Tornos machines for precision automotive components and for some off-highway products," said Kore. "In our Electronics Division, we have not yet begun


SFS


OPERATING PANEL
MAIN DOOR
FRONT SIDE
TORNOS

using Tornos machines, but we may in the future use Tornos machines to produce miniature electronic components."

System-critical parts

In automotive, for example, SFS Group India turns to its Tornos machines to precisely manufacture engine parts and accessories such as the fuel injection pump and gasoline injectors, as well as parts for some braking systems, he said.

"You won't see these parts with a simple look at a car because they are so deeply embedded in the automotive subassemblies," Kore pointed out. "But they are very, very important and functional-critical parts."

A portfolio of automotive leaders

SFS Group India's high-precision manufacturing prowess has earned it a vast customer portfolio that is a de facto "who's who" of automotive original equipment manufacturers.

"All of the manufacturers of two- and three-wheel vehicles and commercial vehicles and tractors are our direct customers," Kore said. "We have a very good base of both of tier one customers who supply to original equipment suppliers. We export 40 percent of what we make to Europe and the United States, and 60 percent is for our domestic market."

Tight tolerances, no problem

The high-precision steel parts and components made by SFS Group India boast tolerances of 0.1 to 5 microns.

"That is really precision," he said, noting that the company produces from 10,000 to 2 million of those tiny parts per year, depending on the part family and type.

Partnering with a pioneer: Tornos

Tornos' reputation as a pioneer of Swiss-type turning and its high-precision machining expertise have made it a natural choice for SFS Group India.

"We chose Tornos because it is very well known for enabling very high-precision manufacturing. Over the years, this relationship has been a good strategic fit because Tornos has the expertise to deal with our very tight tolerances and meet our needs for competitiveness and sustainable quality," Kore said. "We have all varieties of Tornos machines on our manufacturing sites in India, from older technologies to the very latest technologies."

To be more specific, SFS Group India's fleet of Tornos Swiss-type automatic lathes includes six Swiss ST 26 machines, a Swiss DT 26 and a Swiss DT 26S, three Swiss GT 26s, and one each of the Swiss XT 16 and the Swiss GT 13. The company also relies on Tornos MultiDECO, a MultiAlpha, and a MultiSwiss 6x14. In a true vote of confidence in its partnership with Tornos, SFS Group India ordered a new Tornos Swiss GT 26 and four Swiss DT 26 machines for 2025.

"Tornos of course helps us with flexibility, which I would say is a unique Tornos advantage. We can deal with many tools—live or stationary—and our Tornos machines provide the best and fastest cycle times, which helps us with both smaller production runs and high-volume production," he said.

Flexibility is a big plus

Another plus is that the company's machine operators find Tornos solutions very flexible.

"They're not too complicated to program and they're simple to understand," Kore said. "Whenever there is a new Tornos machine feature, our operators are always eager to learn it—and this is made very easy due to Tornos manual with very good instructions and standard operating procedures. This helps them to quickly learn to use these machines."

Kore said SFS Group India's team is passionate about delivering on the group's value proposition: Inventing success together.

"It's in our DNA that when we commit to the customer, we deliver and we take all of our supply partners along with us," he said "That's what I'm most proud of."

With SFS Group's five-year greenfield project underway—a new, 112,000 square-meter (1.2 million square feet) facility situated on 30 acres of land in Kanagala, Belagavi—its partnership with Tornos is a priority.

"We buy some Tornos machines every year. Tornos is a priority for our precision machining requirements based on our customers' needs and the products we develop with our customers," he emphasized. "So, we always keep an eye on Tornos and what they're developing. Tornos is synonymous with high precision and aligns with our core strength and fits in our strategic partnership principle."

sfsgroupind.com

From its São Leopoldo facility, Metalúrgica Nunes relies on Tornos technology to push the boundaries of precision machining.

BUILDING A STORY TOGETHER:

the evolution of precision

at Metalúrgica Nunes

Since 1985, Metalúrgica Nunes has built its reputation in the precision machining market, with a DNA focused on high performance. Today, through a strategic partnership with Tornos, the company based in São Leopoldo, Rio Grande do Sul (RS), Brazil, is pushing its production limits and strengthening its presence in demanding sectors such as pneumatics, automotive, security, and agriculture.

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When experience meets urgency

Metalúrgica Nunes' history is marked by consistency and strength. With two production facilities in São Leopoldo and a third site in Santa Catarina being set up, the company has always relied on its motto, "Together Building a Story," as the foundation of its relationships.

However, two years ago, a new challenge demanded a fast response: the need to expand the shop floor with Swiss-type (sliding headstock) turning technology to meet urgent demand.

“We needed a machine yesterday. I called the Tornos team that supports this region looking for an option, and they offered immediate availability of a showroom machine.”

Norberto Dias, Deputy Director

It was in this context that the paths of Metalúrgica and Tornos crossed.

"We knew the Tornos name, but we had never run their solutions. We needed a machine available for immediate delivery and technical support that could validate our ambitions," recalled Metalúrgica Nunes Deputy Director Norberto Dias.

After technical meetings with the Tornos team, the conclusion was clear: The machines' workspace, operator safety, and technical robustness were exactly what Metalúrgica Nunes needed to raise its delivery standards.

Differentiators that honor 'Swiss precision'

For Metalúrgica Nunes, precision is not just a measurement—it is an identity.

"That's why we hold stringent certifications such as ISO 9001 and IATF 16949, and we serve everything from the housewares sector to complex automotive supply chains [tier 1 suppliers and original equipment manufacturers)," Metalúrgica Nunes Director-President Renato Nunes explained.

Its expertise in lean manufacturing and Industry 4.0 (smart manufacturing) management found an ideal partner in Tornos machines such as the Swiss GT 26, Swiss DT 26 HP, and Swiss DT 13 HP + B.

"The Tornos machine gave our production team greater operational safety and streamlined processes that used to be fragmented," Dias said.
Metalúrgica Nunes' expertise in thread profiles and complex cylindrical surfaces is now supported by machine stability that minimizes vibration and enables higher cutting speeds.

Case 1: the 'all-in-one' breakthrough and logistics efficiency

The first major test came with the implementation of the Swiss GT 26 to produce a complex part for the security segment, where tight tolerances and surface finish were critically important to the customer.

"We needed a machine yesterday. I called the Tornos team that supports this region looking for an option, and they offered immediate availability of a showroom machine," Dias recalled.

The decision process was rigorous and collaborative: Through online meetings with Matheus Caria and the Tornos technical team, Metalúrgica Nunes' lead technician, Ernani Silveira, validated the machine's feasibility.

"What caught our attention was the larger internal workspace and improved operator safety, reducing handling risks. We decided to invest in Tornos because of immediate delivery combined with technical features and capacity superior to what we already had in-house," Dias said.

Before integrating Tornos machines, the process was fragmented: The part was machined on one machine and then moved to a machining center only for drilling. Beyond time savings, eliminating the second machine improved concentricity and angular accuracy that were previously difficult to maintain—drastically reducing inventory and the risk of scrap.

The shift to Tornos made it possible to consolidate everything into a single operation. As Silveira explained, the benefits went far beyond a 20 % productivity increase:

1. ***Inventory and WIP reduction***
   "By loading bar stock and taking out a finished part, we eliminated intermediate stock. Before, we had parts sitting between one machine and another, which inflated inventory," the technician said.

2. ***Logistics and lead time***
   Eliminating internal transport reduced total manufacturing lead time. Less movement means lower cost and faster delivery.

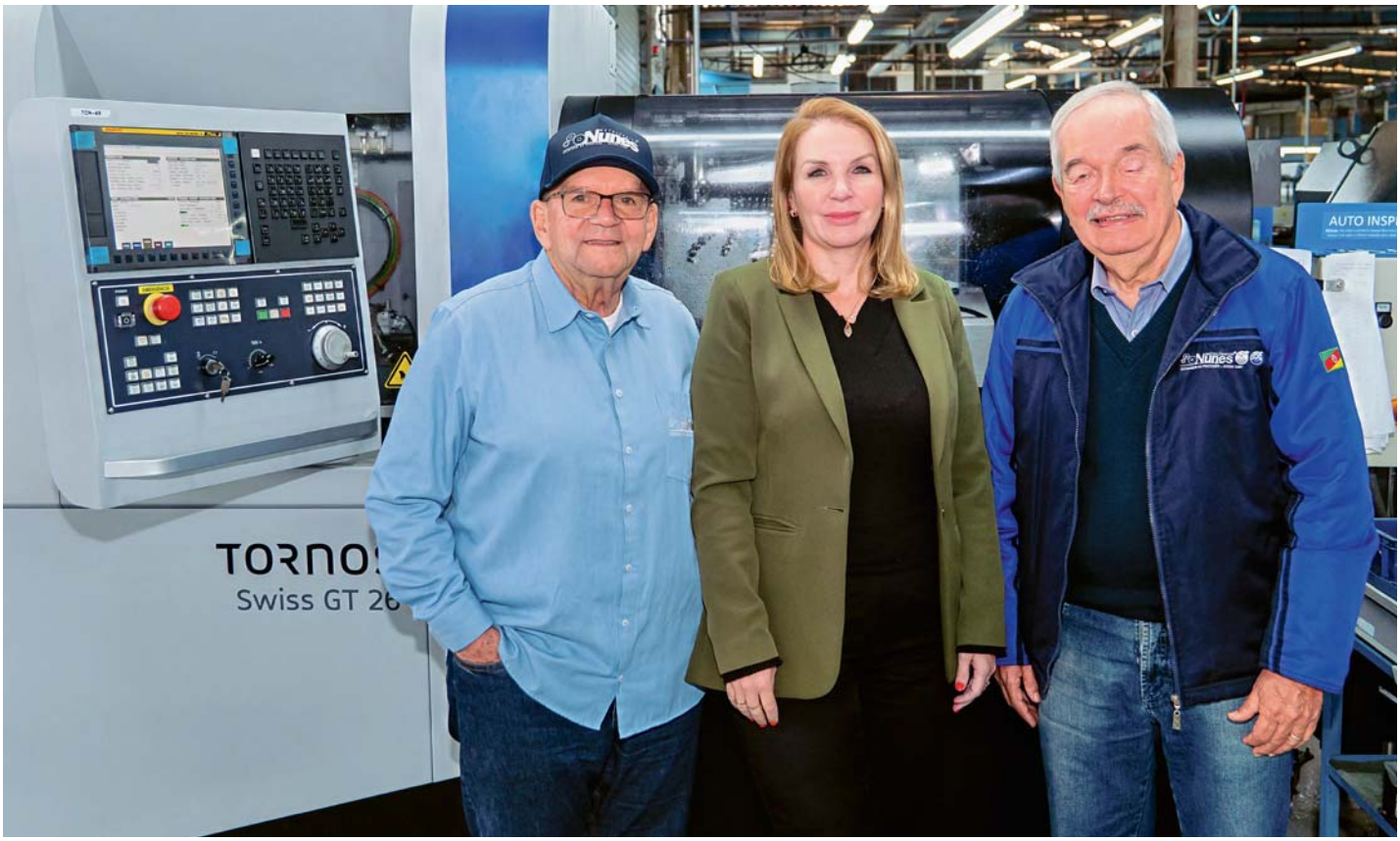
3. ***Precision and real-time quality***
   One of the biggest gains was eliminating the "second clamping" (a second setup). Reclamping a part in a second machine can introduce variation in runout and concentricity. "With the part completed in a single setup, the process runs faster and with higher consistency. In the old process, an error in the first machine might only be discovered much later in the second, generating scrap. Now, control is total and immediate," Silveira emphasized.

Simplifying the operation became a major enabler. For Metalúrgica Nunes, centralizing processes is key to a holistic view—where the operator can verify the part every cycle, dramatically reducing the margin of error.

Case 2: surpassing engineering limits

The second challenge involved a part that had to be machined from a 22 mm bar, exceeding the 20 mm bar capacity of Metalúrgica Nunes' previous equipment. The opportunity came with the Swiss DT 26 HP which allowed the company to run larger bar sizes and expand its market capability.

"We were using the wrong machine for the right part. With the Swiss DT 26 HP, we eliminated the need to split operations and were able to produce grooves and finishing operations much faster and more accurately. The ability to perform front working and machine simultaneously on both spindles turned what would have required three machines into a single one—opening the door to new products in the pneumatics and security segments," Silveira pointed out.



From left to right: Renato Nunes, Renata Nunes and Norberto Dias in front of one of the Tornos solutions supporting Metalúrgica Nunes' growth

Reduced vibration and higher cutting speeds extended tool life and delivered such superior surface finish that it even impressed customers.

"A customer saw the part running on the machine and, because of the quality, doubled the order on the spot. He was already considering another supplier, but Tornos secured that contract for us," the team celebrates.

Looking ahead: scale and complexity

"Today, Metalúrgica Nunes breathes innovation," said Renata Nunes, director at Metalúrgica Nunes. With a modern metrology lab and real-time equipment monitoring/management, the company is ready for even greater challenges. The transition from processes that once required dozens of steps to optimized Swiss-type turning operations has proven to be the path to global competitiveness.

"We're hoping for parts that are increasingly complex, because now we have the machine capacity and the technical team ready for it," the Metalúrgica Nunes team concluded. With Tornos' infrastructure and a future-focused mindset, Metalúrgica Nunes proves that Swiss precision, at the heart of Rio Grande do Sul, is the key to customers' success in 2026 and beyond.

metalurgicanunes.com.br

Moutier: where Tornos machines become

tailor-made solutions

At Tornos, flexibility goes far beyond choosing a machine and selecting from a list of standard options. In Moutier, Switzerland, a team of specialized engineers works closely with customers to develop customized solutions designed to meet very specific production requirements. The objective is simple: Adapt the machine to the customer's environment, peripheral equipment, process constraints, and automation goals.

TORNOS

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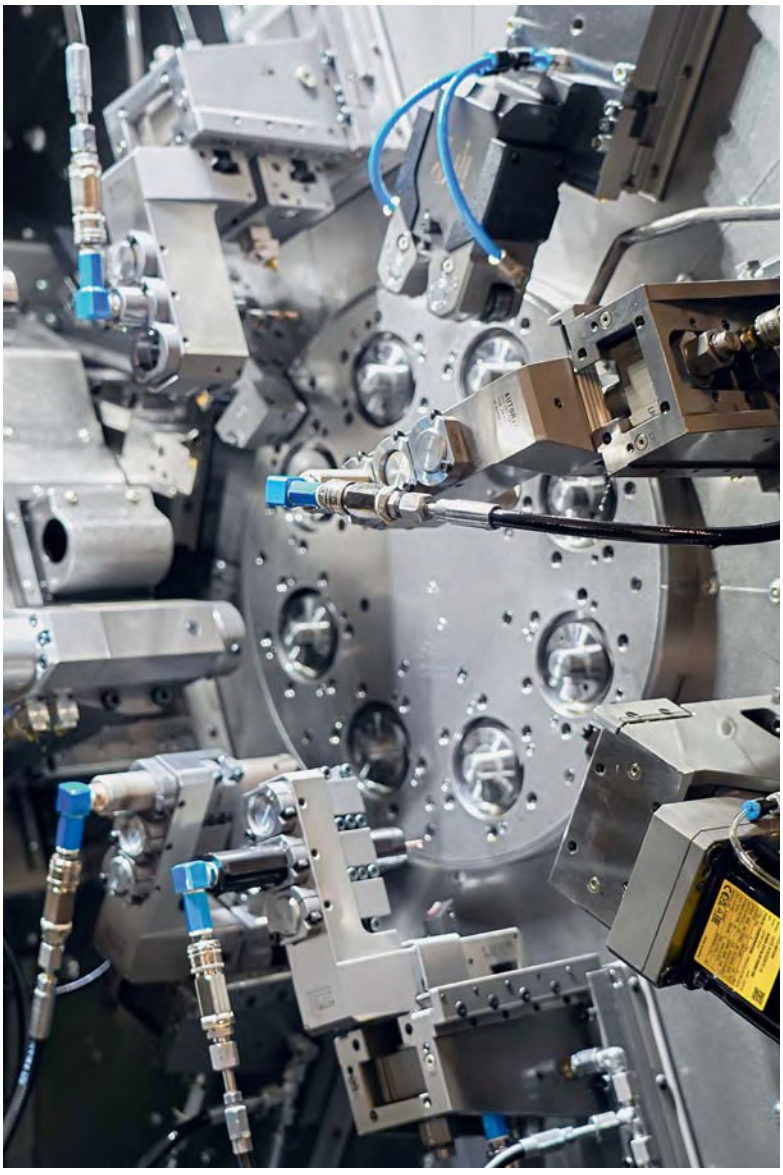
Tornos machines are renowned for their high level of adaptability. They can be equipped with a wide range of standard options depending on the application and production requirements. However, some projects require a more customized approach. For example, a customer may wish to integrate a high-pressure pump already used in their workshop but not included in the standard Tornos catalog. In these cases, the Moutier team can assess the request, evaluate its technical feasibility, and propose a professional integration into the machine.

This approach applies to many types of peripheral equipment, including bar-feeding systems, conveyors, robotic cells, paper or centrifugal filtration systems, measuring equipment, and automation solutions. At a time when manufacturers are seeking greater process stability, autonomy, and efficiency, this integration capability is a decisive advantage.

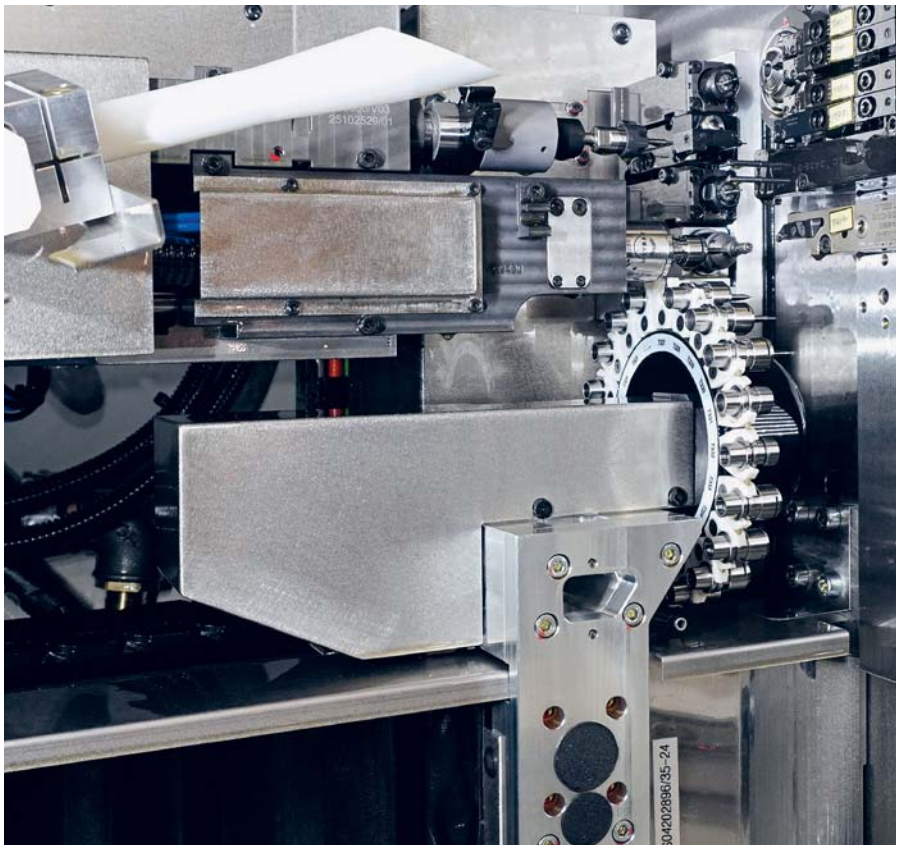
From simple peripheral equipment to robotic cells

Specific customer requests can take many different forms. Some involve relatively straightforward integrations, such as adding a particular peripheral device. Others require more extensive development, including a comprehensive review of production flow, safety, ergonomics, and performance.

Automation now plays a central role in many of these projects. On certain machines, Tornos can integrate robotic cells dedicated to loading, unloading, part handling, or inspection. On the Swiss GT, for example, a robotic access door can be added to facilitate the integration of a robot cell. This capability enables customers to increase production autonomy while maintaining the precision and reliability expected from a Tornos solution.



A vacuum carousel specially developed by Tornos for the reliable recovery of ultrasmall parts thanks to a controlled suction system.



Customized developments are not limited to the most sophisticated machines. They can also be implemented on midrange platforms such as the Swiss DT and Swiss GT. This flexibility broadens the scope of tailor-made solutions and allows more customers to benefit from equipment adapted to their actual production needs.

Expertise also available for multispindle machines

On multispindle machines, the possibilities are particularly extensive. Tornos has developed numerous customized solutions to support customers in demanding applications. Certain cells can, for example, automatically measure parts, verify their length, or secure critical process steps.

Thanks to closed-loop manufacturing, these capabilities can go even further. Measurement data can be processed by an algorithm capable of recommending, and even applying, automatic corrections.

The machine is no longer limited to producing parts; it actively contributes to process stabilization. For customers, this means fewer manual interventions, greater production consistency, and enhanced security for machined components.

This approach is particularly valuable in industries where repeatability, traceability, and dimensional control are essential. It helps bring machining, inspection, and correction together within a single value chain.

A team that knows the machines down to the smallest detail

Behind these projects stands a team of highly specialized engineers based in Moutier. Their strength lies in their in-depth knowledge of Tornos products and their extensive field experience. They understand workshop constraints, operator expectations, production requirements, and quality standards.

Every request is evaluated methodically. The objective is not simply to add equipment to a machine, but to design a reliable, coherent, and sustainable solution. The team assesses mechanical, electrical, and software integration, as well as safety, ergonomics, and the impact on the overall production process. This professional approach makes the difference. It enables Tornos to deliver solutions that are fully adapted, controlled, and seamlessly integrated into the machine environment, while meeting the quality standards expected from an experienced machine tool manufacturer.

A practical response to customer needs

Customized developments perfectly illustrate the Tornos philosophy: offering far more than a machine. Every customer operates within a unique production environment, with existing peripheral equipment, internal constraints, and specific objectives. The ability to adapt the solution to that reality is a major advantage.

Whether integrating a high-pressure pump, a filtration system, a robotic cell, measuring equipment, or an advanced automatic correction solution, the team in Moutier supports customers in identifying and implementing the most appropriate technical solution.

Through this expertise, Tornos reinforces its role as a true production partner. Machines remain at the heart of the offering, but their value increases significantly when they are precisely adapted to each customer's specific requirements. In Moutier, this ability to turn innovation into practical applications transforms individual requests into concrete industrial solutions.

tornos.com

In Moutier, the Special Development team supports customers in designing solutions tailored to their production challenges.

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BRINGING THE 'BOOM!' TO TECHNICAL EDUCATION

The Swiss Machining Academy is revolutionizing the world of Swiss-type and multispindle machining by offering **FREE** online training. Powered by Tornos and TITANS of CNC, this academy equips students, educators, and the manufacturing workforce with the skills needed for success in today's precision machining industry.

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