



# decomagazine

THINK PARTS THINK TORNOS

47 04/08 ENGLISH



**With expertise and quality in connection technology.**



**Sources of opportunities!**



**15 300 potential trade contacts per day!**



**REGO-FIX:**  
"Swiss Made" for over 50 years.

8

20

32

55



Stay ahead or die!



The very latest in modern fluid management in the Tornos Techno-Center.



It all started with an idea...



Reduction in cost of parts, another milestone reached!



Our cover:

What have a telephone salesman and a famous café group got in common?

To learn more about this concept, turn to page 5 throughout this entire new edition!

## IMPRESSUM

Circulation: 14'000 copies

Available in: English / French /  
German / Italian / Swedish / Spanish

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# AHHH THE CUSTOMER...



The salesman's customer orientation as described below is insufficient. The products must match the needs and expectations of the customers, the service also needs to be second to none. In fact, to ensure its long-term future, a company selling equipment goods needs to ensure that this customer orientation functions on all levels. Nothing new there, then. And I tend to agree! However...

## The trade fair: A hive of activity where each individual is identified

Welcoming 15,000 trade visitors to your stand is a dream, but during the recent IMTS (Chicago) this was the average daily number of visitors who came together under one roof. Visitor numbers for this trade fair reached 92,500. The same week, AMB (Stuttgart) welcomed 60,000 visitors. On site to compile different reports, I was struck by the customer orientation. Of course, it's no secret to anyone that it's imperative that the customer or potential customer feels comfortable and receives a warm welcome at your stand. Smiling hostesses and friendly and knowledgeable sales people are essential. You must listen to the customer... all the well-known theories... but what exactly makes the difference? What makes a customer come to your stand and what makes him come back?

I had a good look at how many of the stands are run. Some are so well cordoned off and guarded that it is easier getting on a plane than getting to the stand. Some have been abandoned, others look so unfriendly that they simply make you want to turn round and walk the other way, yet millions have been invested here! Of course, there are exceptions here!

## Do you know where the customer orientation impressed me the most?

I have a weakness for the "Cinnamon dolce latte" at Starbucks and it just happens that not far from the IMTS press centre this very stall was waiting for me every morning. Arriving at the same time as several thousand other people, of course, I had to join the queue. What did I see behind the counter? A small

team of 5 or 6 people working from 9am to 6pm in difficult conditions, in a very noisy environment and where they go back and forth all day long. Despite all this, the small team welcomed you with a smile, they clearly enjoyed serving customers, they joked and they were having fun.

With all the orders being taken, names are exchanged, so when it comes to getting your cup, it has a name. In my case, for example: it's a "CDL PY" and it works. How many customers walk past this sales stand every day? I would say over 1000 but even if it is "just" a few hundred, that's a large flow for such a small team.

On the 3rd or 4th day, I am waiting in the queue, I place my order for a "large CDL for PY" and it's the next customer's turn. The person serving asks *«the usual, Frank? A small Machiatto?»* Surprised and flattered at having been remembered, Frank replies, in a similar tone, that it is a special day and not to go too fast and that he wants something else... and the queue bursts out laughing! Later, Frank leaves, smiling, just like the queue.

It's definitely down to a lot of observation and a little personalisation on the part of this person, but it is above all the urge to make the customer happy and to treat each one in a "special" way. A challenge? Rather a frame of mind that can be applied everywhere, including the machine tool sector!

Bravo Starbucks employee and thank you!

Pierre-Yves Kohler



## SWITZERLAND AT THE MEDICAL DESIGN & MANUFACTURING SHOW

February 10 – 12 2009, Anaheim CA

### Market like no other

The US medical device market with a turnover approaching \$ 100 billion in 2009 represents a huge and attractive market for subcontractors, material suppliers, component fabricators and service providers. The USA is home to many of the world's leading medical device manufacturers such as Johnson & Johnson, General Electric, Baxter, Tyco and Medtronic. Seven out of the world's ten device manufacturers are US companies.

### Show like no other

As previous years, Switzerland, cradle of high precision, will offer the opportunity to US medical market to discover some of the Swiss leaders in Medtech. You're welcomed to visit the Swiss Medtech Pavilion in Hall C and meet representatives of these leading Swiss manufacturers<sup>1</sup>:

**Baumann-Springs**

[www.baumann-springs.com](http://www.baumann-springs.com)

**CM Medical**

[www.cmsa.ch/medical](http://www.cmsa.ch/medical)

**Maillefer Instruments**

[www.maillefer.com](http://www.maillefer.com)

**Medelec-Minimeca**

[www.medelec-tubes.com](http://www.medelec-tubes.com)

**Polydec SA**

[www.polydec-inc.com](http://www.polydec-inc.com)

**Rego-Fix Tool Corp.**

[www.rego-fix.com](http://www.rego-fix.com)

**Synova**

[www.synova.ch](http://www.synova.ch)

**Tornos SA**

[www.tornos.com](http://www.tornos.com)

**Unisensor SA**

[www.unisensor.ch](http://www.unisensor.ch)

**Weidmann Plastics Technology AG**

[www.weidmann-plastics.com](http://www.weidmann-plastics.com)

**Willemin-Macodel SA**

[www.willemin-macodel.com](http://www.willemin-macodel.com)

<sup>1</sup> The list is accurate at the moment of the publication, several more companies could be part of the Swiss Medtech Booth.





Swiss companies are uniquely qualified to benefit from the extreme precision and quality requirements of medical manufacturing and the higher profit margins that go with those requirements. On the Swiss Medtech booth, you can discover both machine tool builders offering solutions to US subcontractors and Swiss subcontractors offering production capacities to US medical companies.

The Medical Design & Manufacturing Show West is the largest US event for the medical device manufacturing sector. The SwissMedtech® Pavilion now in its fourth year with its central location offers a focal point of attraction for the awaited 50.000 professional visitors.



View of the Swiss Medtech stand at MD&M 2008.

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## STAY AHEAD OR DIE!

In the IT and electronic worlds, the race for innovation never stops. As soon as a product is released, it's old! Are there some exceptions to that «rule»? There are probably a few devices or softwares that stay ahead longer than a few months. Sometimes it's just adjunctions that make it last longer.



Scott Kowalski validating Virtual DECO machining sequences just before the IMTS.

**decomagazine** was at the very first launch of virtual DECO, the 3d tool used by Tornos to explain its products in early 2007 at its grande première in Hollywood<sup>1</sup>. Nearly two years later at this fall IMTS, Tornos uses a new version of the tool to show more machines, more processes... more everything.

As in California two years ago, there is hype at the show about virtual DECO. The IMTS TV crew did a report on it and the daily show magazine also emphasized this innovative tool.

To get to know more about it, **decomagazine** met Scott Kowalski, President of Tornos US.

**decomagazine:** Thank you for receiving us in these soft vibrating seats Scott. What's new in this version of your virtual show?

**Scott Kowalski:** We added new machines so now you can discover not only Sigma and Micro but also the whole DECO product range. The eight DECO line models are on the show, four a-line and four e-line. In the short four minute movie, participants can see the features and benefits of our machines and also explore Swiss turning in general. In addition of the show we're watching now, we also created virtual kiosks next to the machines where you can not only

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<sup>1</sup> In fact the Westec show took place a few miles from Hollywood.

find the 3d animations but also traditional videos, machine specs, and every important detail about every model we offer.

**dm:** Watching the show, it seems to me that we're starting at the fundamentals of swiss turning, isn't it too low a level to start? If I'm a customer working already with swiss types machines, wouldn't it be boring to see it?

**Scott Kowalski:** Not at all! It's true that the virtual has two aims: for regular customers, it's a tool that shows the main features and benefits of Tornos models; and for newcomers to this world, it's a real entry door that shows them they can make money with swiss turning!

**dm:** Typically what is the feedback from customers?

**Scott Kowalski:** The virtual DECO shows have been very well received! A lot of customers that sat down to watch for "just a minute", started the show and kept watching – not just the new virtual, but all of them in our archive. And were hungry for more. With this tool, we're able to speak the same language. From the press there is also very good feedback, we're considered innovators, even though it's been nearly two years since we released the first virtual DECO. You'll soon be able to see the IMTS tv spot that featured the virtual DECO on [www.tornos.us/youtube](http://www.tornos.us/youtube). We are starting to see some virtual presentations in some other booths, companies have seen the benefits of such a tool.

**dm:** Do you mean you've been copied?

**Scott Kowalski:** Good ideas are here to be used and if the concept starts to be spread it means simply we were on the right path. It's up to us to stay ahead.

**dm:** Does it mean you are already working on some improvement or new things?

**Scott Kowalski:** Yes obviously. We're working on new machines – both single and multispindle – as well as more processes. If we can show people everything on virtual, we could really help them a lot! For instance, a salesperson can easily improve his message with 3d models that show his customer, in a photo-realistic and engaging way what he's speaking about.



View of the DECO 13a machining area.

## Videos, Virtual Movies Illustrate Machine Tools

By Lori Beckman  
Production Machining

Offering a unique, fun way to learn about machine tools isn't always the goal for machine tool builders, but Tornos U.S. has stepped up its display this year to do just that—educate booth visitors while presenting its machine tools in an interesting way. Show goers perusing Booth A-8358 can take advantage of one of seven video kiosks or take a seat in the 3D virtual movie theater to learn about Tornos' new machines.

The seven kiosks are positioned near the machines on display. Each kiosk has a dual screen setup with a 12-inch touch-screen interface that allows visitors to select from multiple movies and a "portrait" LCD where the content is viewed.

Included in each kiosk's library are 15-plus video clips of parts being turned



Watch 3D tours of Tornos' newest machines while reclining in "Thunderbutt" seats.

on various Tornos machines. Users can filter the video library by application

(medical, automotive, electronic and so on) or by machine type. The interface includes icons for applications/market segments, thumbnail images of the parts being featured in each video, text descriptions of the part material/size/machine and a time length for each movie. In addition to these traditional videos, booth visitors can also access all five of Tornos' 3D virtual movies on the kiosks.

The theater in the booth also shows these movies, which allow visitors to immerse themselves in machine builder's newest machines, including the Micro 8, Deco 13a and Sigma 32. On an 8-foot screen, the movies provide 3D tours of the machines in a theatrical style and include part cutting simulations. "Thunderbutt" reclining seats and surround sound add a fun aspect to learning about these machine tools.

For those who would rather experience

the machine tools firsthand, the booth display also consists of the company's 16 new machine tools it is introducing at the show. The Delta Swiss-turning center is one of these new machines.

"The Delta is an exciting venture for us," says Scott Kowalski, president of Tornos. "It takes Tornos, for the first time, into the 'entry level' machine market."

Today, with increasing frequency, even the most sophisticated parts manufacturers and producers are finding a need for simple, quality parts. The new line is dedicated to cost-effectively machining these simple parts, says the company.

The Delta is constructed with a cast iron base, a large capacity chip pan and a wide working area. It can be customized to work with or without a guide bush. Options and accessories include C axes, high pressure pumps, work conveyors and mist collectors.

Press cutting from "Show Daily" the trade fair magazine which printed an article on Virtual DECO during the IMTS.

**dm: Is the virtual available for every salesperson or do you have to be sat on these chairs to enjoy the show?**

**Scott Kowalski:** Obviously the vibrating seats are only available at shows. Beyond the shows, every salesman from Tornos can use it on his laptop. More than that, if you have an Internet connection, you can also see it from the net. You have an ipod? You can simply go on youtube and watch it there too. We're really having a great solution that is widespread. We do what's necessary to offer our customer every means of communication he would like to use.

**dm: Listening to you, we have the impression that maybe we could replace a machine or even a show... is it something you could imagine?**

**Scott Kowalski:** I read that the 2008 IMTS show broke attendance records – total registration for the six day event was 92,450. That's a lot of traffic and exposure you can only get at shows. Those figures also prove that manufacturing is not only healthy, but thriving. Manufacturers understand that investing in the latest technology is a key competitive factor. Which is great news for us! And these shows bring a lot of people ready to buy. We're producing machines that produce parts. And we know that our customers want to touch and feel the real machines

too. Completely replacing a show or every machine is not something we think about. On the other hand, the virtual gives us options and the opportunity to communicate in new ways. Sometimes we go to shows with the virtual only, sometimes we add machines.

**dm: You told me that with this tool, you're kind of educating your customers. Isn't it exaggerated to say so? Is it possible to sell machines by educating?**

**Scott Kowalski:** It's new. We've gone from simply showing processes to education. But just because it's educational doesn't mean it's boring. With this educating point of view, we're more open and we can really show people that were not even thinking «Swiss» that they actually produce far more parts than they could imagine on these machines. For instance, yesterday I met with the president of a company that doesn't use Swiss lathes. He spent a while watching the virtual, then we were able to go further in the process to see that we can actually replace his way of working with a completely new one. He is producing parts on three machines using four processes. We have produced a similar part on a swiss turning machine, completely finished, without any secondary or third operation. Can you imagine the benefits? The customer can!



**dm: Is it like a crusade to try to show more and more people what swiss turning can do?**

**Scott Kowalski:** We're not giving lessons. We have the right technology that can makes our customers more profitable. We're the genuine Swiss producer of Swiss turning machines, so it seems logical that we show people what this technology can do. We don't make it for free though. The more satisfied customers I can make, the more machines I can sell. It's a win-win situation.

**dm: What is the next step with virtual DECO?**

**Scott Kowalski:** As said previously, new machines are being added, new channels of distribution, new processes... we're not looking to be always adding things, it's just that we're improving it day after day. The more we can explain and show things, the more powerful it is. Even if it's educational, it's a show that is fun and interesting. That's a direction we will continue. We can imagine a lot more uses for the virtual. For instance, we may use it for training or for service. We can also imagine more channels to

spread the news – why not directly on the machine? In fact the only limit is our imagination to create value for our customers.

**dm: Thank you for this update on high-tech way of communicating. What would you be the last word of this interview?**

**Scott Kowalski:** There is more to come, stay tuned to Tornos. You can subscribe to our RSS feed on [www.tornos.us](http://www.tornos.us).



Presented together for the first time: the 8 Tornos DECO models.

## WITH EXPERTISE AND QUALITY IN CONNECTION TECHNOLOGY

EISELE PNEUMATICS IS GROWING WITH AN INNOVATIVE APPROACH  
AND CONSISTENT CUSTOMER FOCUS.

**"We get on when our competitor's expertise gets off."** This quote from Jürgen Gabriel, the technical company director of Eisele Pneumatics GmbH in Waiblingen, Germany, borders on the arrogant but when sitting across the table from this genuinely modest, excellent technical specialist it is apparent that it conceals vast amounts of expertise. With over 40 patents, around 3,500 standard items and 1,400 special solutions – for the most part in stainless steel – the company has been posting impressive growth rates over the last few years and is now one of the indisputable market leaders in stainless steel connection technology. The production strategy is just as innovative as the products, which is consistently based on quality and cost-effectiveness. Eisele Pneumatics has been using a Tornos CNC MultiAlpha 8x20 multispindle turning machine for the manufacture of stainless steel collets since August 2007 and only has good things to say about it.



Highest quality connector components. The unique strengths of Eisele pneumatics lie in stainless steel manufacturing and high-end machining.

Eisele was founded in 1939 as Gustav Eisele Maschinenfabrik, the main activity being contract manufacture, until Martin Biermann the son-in-law of the company's founder, started developing and producing pneumatic components in the mid-Sixties. When Martin Biermann took over the company in the Eighties, the name also changed to today's Eisele Pneumatics and the consistent specialization in the manufacture of connection components. As part of the succession plan, the brothers Jürgen Gabriel as Technical director and Thomas Maier as Sales director took over the company in 2005. The prevailing conditions were almost perfect. Jürgen Gabriel had

been plant manager at the company for ten years and is one of the recognized experts in the field of stainless steel swarf removal. Thomas Maier was management consultant for the company in the Nineties and the succession was the opportunity for him to set the course for the new strategic direction. Eisele Pneumatics already had a worldwide reputation as a supplier of pneumatic connectors, but only a select few were aware that the company also offered innovative solutions for connectors with liquid media.

### **Innovation as the driving force...**

Jürgen Gabriel and Thomas Maier set themselves the ambitious objective of bringing at least one new product range to the market every year and is currently right on course. The current product range includes around 15 lines for a very wide range of applications, from simple pneumatic connections and valves to special connectors for aggressive media, cavity-free applications, applications for welding technology and liquid connectors for high pressures. The catalogue alone features 3,500 standard items, where the particular force of Eisele Pneumatics lies in the development and manufacture

of customer-specific special solutions. The perfect teamwork between both company director brothers is also easy to see in this field. The previous management consultant Thomas Maier is firmly focused on customer benefits and is constantly seeking solutions that bring the customer added value. This begins with advice and takes over the development processes for customers and extends to the creation of a customer-specific product catalogue, which is in turn available to their suppliers. These catalogues include the Eisele products for the supplier with the customer's item number and can therefore be called up directly. This catalogue is currently available for



Forming a perfect team: Jürgen Gabriel, Technical Director (left) and Thomas Maier, Sales Director of Eisele pneumatics (right) with Sven Martin from Tornos (centre).



Thomas Maier promotes total process efficiency and, together with Jürgen Gabriel has developed Eisele pneumatics to the position of global market leader in stainless steel connector technology.

two major automotive constructors. Eisele is currently developing a new logistic system for a third constructor, which will make the ordering procedure even more secure and simple. The constructors can download 3D models from the homepage, which can be incorporated directly into the relevant construction drawings. This is a result of the efforts Thomas Maier has made towards process efficiency. The next phases in this area are electronic data exchange and the automation of order processes. It is hardly any wonder that Eisele Pneumatics has become the preferred supplier to automotive and printing machine manufacturers including manufacturers of bottling plants and painting units.

### **...customized manufacturing as a pre-condition**

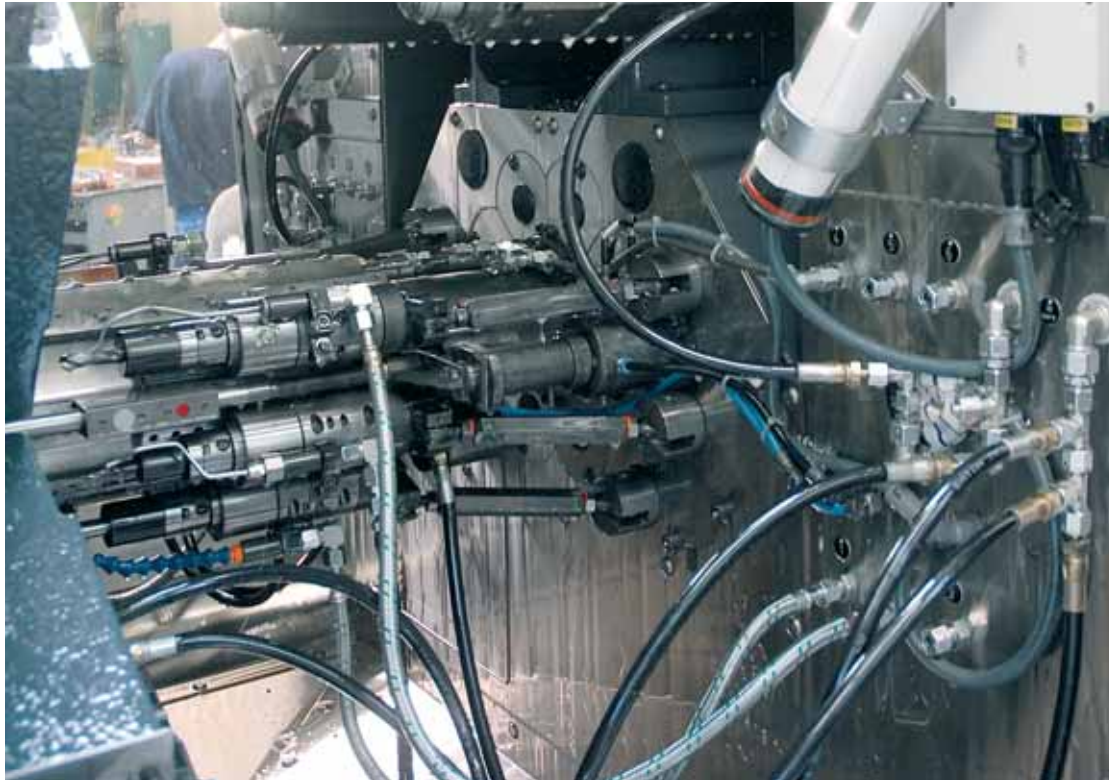
These ambitious specifications from Thomas Maier can only be implemented because he is supported by his brother Jürgen Gabriel, who is a master player of modern manufacturing. 90% of standard components are ex stock, the remaining 10% supplied very quickly. And even for customer-specific special solutions, the time between the project definition and

delivery is generally a maximum of six weeks, usually even quicker. This is only feasible because Jürgen Gabriel believes in in-house production exclusively and has a percentage rate of 99% with 40 of the most modern CNC machines. "We supply high-tech in total quality", says Jürgen Gabriel, "and that is only possible if I can influence and control every phase in the production chain. Every one of the 130 employees has also taken on board this high quality standard. The company has strong roots in the region and is convinced that the relevant motivation and qualifications can only be found here. The company also invests considerably in training and further training of its employees. There are currently 13 interns and 4 students from the university of cooperative education (Berufsakademie) who are being prepared for a future with Eisele Pneumatics. Success is to the credit of Jürgen Gabriel. The complaints and return rate has been virtually zero with pleasing regularity, customer confidence is such that a large delivery of connectors will shortly be on its way directly to the USA where it will be integrated without inspection into a large bottling plant. This demonstrates confidence as a simple leak in the tube fitting would cause plant worth millions of dollars to fail. Jürgen Gabriel from Eisele Pneumatics is not worried about this. Our connectors are so good that there will be no failures during the machine's life time. The patented stainless steel plug connections are a decisive factor also, which also retain a perfect seal over long usage periods.

### **Process optimization through Tornos CNC multi-spindle turning machines.**

Up until August 2007, the stainless steel collets from Eisele Pneumatics were produced in a time-consuming manner on four to five machines in several work processes. With increasing volumes, Thomas Maier





Working to the limit: The Tornos CNC multispindle automatic turning machine, the MultiAlpha 8x20 manufacturing 2000 stainless steel collets per shift.

and Jürgen Gabriel looked for other ways of improving their production process. Anyone who has ever tried manufacturing in stainless steel knows that other rules apply. Different material properties for different loads, alternate temperature behaviour and irregular swarf formation are a few of the particulars that make the process complicated and extremely low production tolerances at high part volumes virtually impossible. But Jürgen Gabriel is an expert in this field and starts to think about different alternatives. When he discussed the option of collet production on a multispindle machine, there was a lot of head-shaking from most of them. Tornos, the Swiss manufacturer rose to the challenge. The newly-presented MultiAlpha 8x20 was an opportunity for them to accompany the customer to the limits of what was feasible. The two directors and owners of Eisele Pneumatics were satisfied with this installation because, in Tornos, they could see a counterpart in innovation and quality standards. The development process lasted several weeks and during this time, a lot of expertise in stainless steel was transferred from Eisele to Tornos. For their part, the technical and applications engineers from Tornos brought a wealth of experience in mechanical engineering and optimization of operating strategies. The team came up

with a solution that now produces around 2000 collets per shift on still only one machine and this takes care of the entire process within the required low tolerances. Retrospectively, Jürgen Gabriel admits that he set Tornos a virtually impossible task and the project carried with it a certain amount of risk. But success was to his credit and is a further milestone down the path the two brothers want to go down.

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## TRICKS AND TIPS

To close the chapter on the Macro B in the “Tricks and tips” section, we are presenting an example of a programme that could be applied to a family of parts.

The workpiece below contains a certain number of constants and variables.

We are going to run the programme that will include a certain number of calculations that will enable us to determine the value of the variables depending on the constants proposed.

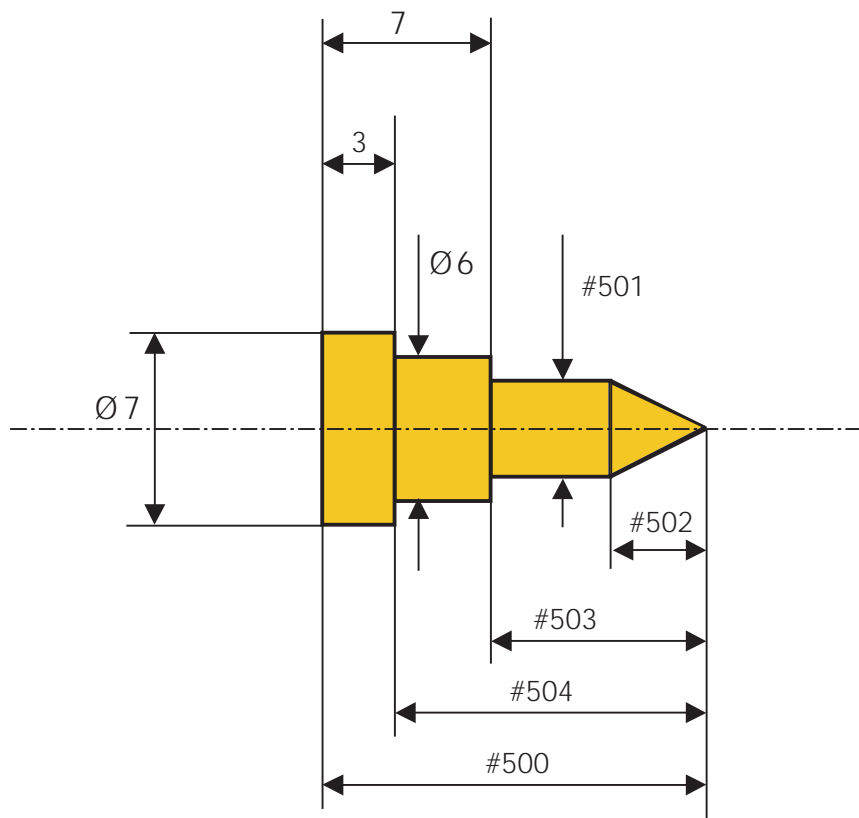
### Conditions

- The length of the workpiece (#500) varies between 9 mm and 14 mm.
- The diameter of the pivot (#501) varies between 1 mm and 5 mm.
- The workpiece is gripped on the diameter of 6 mm.
- The grip length is equal to the length of the workpiece – less than 4 mm.
- The taper is rough-finished to 0.5 mm of the finish value.
- The taper has a value of 60 degrees.

### Alarms

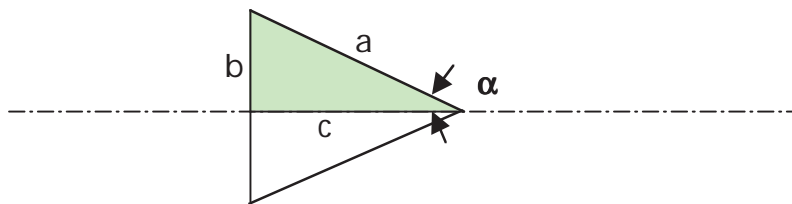
An alarm must appear if:

- The length of the workpiece is outside the fixed limits.
- The diameter of the pivot is outside the fixed limits.
- If the taper cannot be made (workpiece too short or pivot diameter too large).



### Trigonometry reminder

In a right-angled triangle, the tangent of the angle  $\alpha$  is equal to the opposite side (b) divided by the adjacent side (c).



b → pivot diameter (#501) divided by 2

c → length of taper (#502)

$\alpha$  → angle of the taper divided by 2

$$\text{TAN } \alpha = b / c$$

$$c = b / \text{TAN } \alpha$$

$$\#502 = (\#501/2) / (\text{TAN } \alpha)$$

### PROGRAMME

Comment: Only the blue code below will be displayed in the workpiece programme.

### VARIABLES

<i>#500= (to be fixed by the user)</i>	<i>(Length of the workpiece)</i>
<i>#501= (to be fixed by the user)</i>	<i>(Diameter of the pivot)</i>
<i>#502=[#501/2]/[TAN[30]]</i>	<i>(Length of the taper in Pos.)</i>
<i>#503=#500-7</i>	<i>(Length of the pivot)</i>
<i>#504=#500-3</i>	<i>(Length of the diameter 6 mm)</i>
<i>#505=0.02</i>	<i>(Feed)</i>
<i>#506=#500-4</i>	<i>(Workpiece grip distance)</i>

#### TEST OF VARIABLES

<b>IF[#500LT9] OR [#500GT14] GOTO 9900</b>	<i>(Length of workpiece outside fixed limits)</i>
<b>IF[#501LT1] OR [#501GT5] GOTO 9901</b>	<i>(Diameter of pivot outside fixed limits)</i>
<b>IF[#500LT[#502+7]]GOTO 9902</b>	<i>(The taper cannot be made)</i>

#### WORKPIECE PROGRAMMING

Comment: The ISO code below does not refer to the turning of the taper and the diameters.

<b>T0303 M103 S1=4000</b>	
<b>G0X10Y0Z1</b>	
<b>G0X[#501+0.5]</b>	<i>(Position of the tool at the pivot diameter + 0.5 mm)</i>
<b>G1Z-[#502-0.5]F0.03</b>	<i>(Rough turning)</i>
<b>G1X9</b>	
<b>G0Z0</b>	
<b>G1X0F0.05</b>	
<b>G1Z-#502X#501F#505</b>	<i>(turning the taper)</i>
<b>G1Z-#503</b>	
<b>G1X6</b>	
<b>G1Z-#504</b>	
<b>G1X7.5</b>	
<b>G0X15</b>	

#### ALARMS

<b>N9900#3000=101</b>	<i>(Length of the workpiece outside fixed limits)</i>
<b>N9901#3000=102</b>	<i>(Diameter of pivot outside fixed limits)</i>
<b>N9902#3000=103</b>	<i>(The taper cannot be made)</i>

Comment: The numerical control does not accept accents in alarm comments.



## THE VERY LATEST IN MODERN FLUID MANAGEMENT IN THE TORNOS TECHNO-CENTER

In the 5'000 m<sup>2</sup> Tech-Centre in Moutier, Tornos is setting new standards. Also trailblazing in its own way is its Fluid Management system, with a well thought-out supply infrastructure and powerful «vmax-Fluid-Technology» from MOTOREX. This has enabled workflows to be optimized and fully achieves the primary objective, that of saving time.



In the recently built Techno-Center in Moutier, several core activities of the company are now reunited on a floor area of five thousand square metres. On the one hand, you have modular production of all machine types with final assembly and completion tasks such as acceptance testing, setting up and carrying out tests on customer samples. Training courses and model presentations are also held, with the latter taking place in an extremely attractive showroom located within the same building.

### Performance-oriented fluid supply

On average, there are 50 to 60 single-spindle and multispindle machines in the Techno-Center, all of which sooner or later are filled with a machining fluid for acceptance testing purposes. This fluid needs to be drained off completely before the machines are supplied to customers. Based on a volume of 1200 to 1500 litres of machining oil per machine, this soon adds up to more than 50,000 litres!

For this reason, right from the project planning stage and after consulting with fluid supply systems specialist MOTOREX-TOPTECH AG, it was decided that no permanently installed supply system, i.e. no fixed piping to each machine, should be employed. At one fell swoop, this would have deprived Tornos of the benefit of flexible configuration of its floor space.

**Primary factors for the fluid supply system were:**

- **fluid to be available centrally**
- **every machine able to be accessed easily**
- **rapid filling and draining**
- **efficient filtering and quality control of the fluid.**

#### **Tank space with central infrastructure**

With a central fluid supply room in the basement, a combined filling station and several mobile supply containers with integrated pumps and filtering units, MOTOREX satisfied the challenging requirements of this project.

Several tanks containing fresh oil and used oil are already installed in the supply room. These mobile supply containers are filled at the filling station via pneumatic high-performance pumps and are brought directly to each machine tool using electrically powered low-lift trucks. Within just a few minutes, a machine can be filled with an average of 1200 litres of machining oil. Once the machine has passed its acceptance tests, the oil is pumped back out again using the procedure described above and, at the same time, this oil is filtered through an integral filter. Surplus machining oil is therefore cleaned before being returned to the used oil tank. Losses are topped up from the fresh oil tank. MOTOREX PMO is used for quality assurance of the medium employed. With the care and control program MOTOREX PROCESS MANAGEMENT ONLINE, the user is able at any time via Internet access to call up all relevant data and evaluation profiles associated with the fluid being used. In addition, samples are sent regularly to the MOTOREX laboratory in Langenthal where they are subjected to a comprehensive analysis. The results are then produced in an easy-to-understand laboratory report. This means



The central machining fluid store in the basement substantially reduces the cost of logistics. Deliveries to and from the store can be made rationally and in full accordance with prevailing safety and environmental standards.



Powerful pneumatic pumps supply the fluid supply column at the central output station in the machine room. Thanks to the universally applicable machining oil MOTOREX ORTHO NF-X, it has been possible to simplify the fluid handling process to a considerable extent.

that those responsible at Tornos always have the assurance of knowing that the machining fluid is in perfect condition.

#### **All with MOTOREX ORTHO NF-X**

To make centralisation of machining fluid possible in the first place, and to make it cost-effective, Tornos uses the universal high-performance machining fluid ORTHO NF-X. Over the last few years, MOTOREX ORTHO NF-X has proven that a universal application character does not have to be at the expense of



### Strong on consultancy and technology

*"In the evaluation of the new supply system, Tornos made high levels of flexibility a top priority. The range of supply infrastructure available from MOTOREX-TOPTECH AG is highly impressive in a number of respects. Further to this is the fact that MOTOREX with ORTHO NF-X carries a universal high-performance machining oil in its range which is suitable for use on all commonly used materials, machining processes and machines. The performance capability of ORTHO NF-X could be verified right up to today directly beside the machine tool in the presence of the customer.*

*I also found the quality of advice provided by MOTOREX technical staff to be particularly good; you realised straightaway that these people really know what they're doing when it comes to industrial lubrication applications!"*

*Jean-Paul Charpillon – Responsible of Assembly Logistics and Organisation, Tornos SA*



Several of these double-walled containers are available for filling and draining the machines. These can be transported like pallets and each one is equipped with a pump and a filter unit.





With the wall-mounted hose rollers, the supply containers can be filled centrally and close to the machines. A fill level display on the container and an automatic shutdown unit protect the system from becoming overfilled.



When pumping out used machining fluid, the fluid is cleaned to a particle size of 3 microns using an integrated and highly efficient pump. This means that optimum purity levels can be assured for the machining fluid in the used oil tank.

performance or quality. The development of ORTHO NF-X high-performance machining fluids for all types of material and machining operation clearly meets the customer wish for simplification of the fluid handling system. The relief on workload caused by this severe pruning of available options can be felt clearly in financial as well as in logistical terms.

Another argument for users looking for high performance is provided by MOTOREX  $\nu$ max-Technology which proves its capabilities impressively time after time through optimized cutting data in various tests. A highly complex additives package in ORTHO NF-X makes it possible to obtain desirable chemical synergy effects during machining operations, which translate into higher maximum production speeds. Furthermore, this long-life medium contains no problem substances and can therefore be disposed of inexpensively.

#### Comprehensive range of services

With every new investment in new production equipment, profitability is the main consideration - and given the large number of influencing factors on a machine tool, it is an extremely challenging task to create the perfect balance for every component being produced. In this task, you are assisted not only by specialists from Tornos but also from a well-resourced After-Sales Service at MOTOREX. For example, MOTOREX also provides the free on site support of a MOTOREX technician whenever you purchase a Tornos multispindle machine.

Would you like to modernise your fluid supply facilities and learn more about the new generation of ORTHO machining fluids and the scope for optimising things in your field? If so, please feel free to contact us!

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## SIMULTANEOUS ROUGH FINISHING ON SIGMA 32

Equipped with mirrored kinematics, the Sigma 32 was able – until now – to balance machinings between an identical spindle and a counter-spindle and of course carry out simultaneous machining on two workpieces. The new rough-finishing unit also enables simultaneous machining with two turning tools on the main spindle.



"Rough-finishing" turning operation on Sigma 32: It's now a reality!

## Option

*Rough-finishing turning device with pneumatic command for Sigma 32 – Option number 236-2840*

### Principle

An independent rough-finishing tool is fitted to a pneumatic system positioned opposite the platten. This enables simultaneous turning.

This device can be installed opposite platten 1 ie at the main spindle.

### Benefits

Depending on the type of part being produced, the volume of swarf to be removed requires several passages to achieve the required level of finish and precision.

- Simultaneous turning for rough-finishing and final-finishing.
- Saves machining time.
- Increase in machining quality with no time lost.
- Highly flexible when setting up operations.
- Ideal for machining driving shafts and parts requiring deep cutting.

### Performances

Cutting depth 4 mm in 404 stainless steel, feed 0.2 mm/t.

### Technical specifications

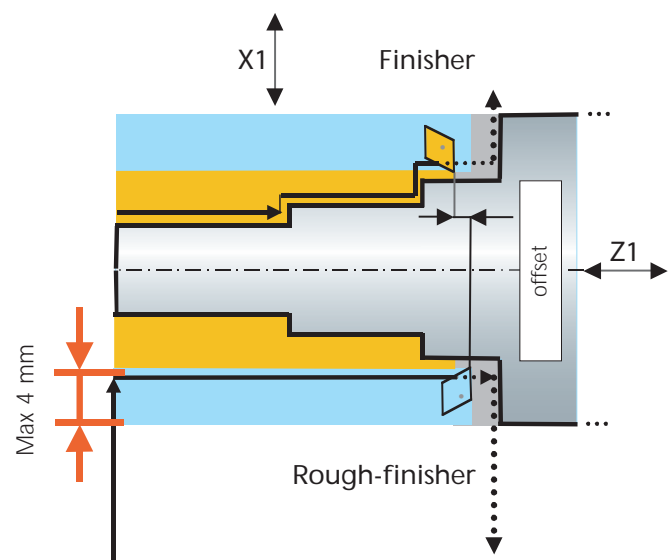
- Pneumatic system.
- Code M commands.
- Double rod articulation.
- Tools cross-section 16 x 16 mm.
- Mechanical locking during the machining phase.

### Compatibility

Sigma 32.

### Availability

This option is already available ex works. Set up on machines already installed is possible.



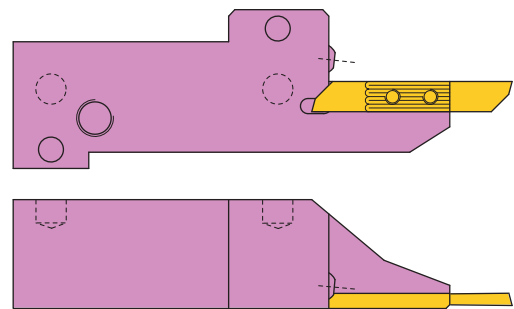
## COMPLEMENTARY TOOLING: A WEALTH OF SOLUTIONS

One of the key parameters when producing a part is the choice of tools to meet the different requirements. Many manufacturers are working in this field and even if they can all boast extensive catalogues, it's very often the case that we are unaware of the actual existence of certain tools that are actually extremely efficient. To launch this new series of articles, we are presenting the Applitec tool for sectioning small workpieces.

### Sectioning tool for small workpieces



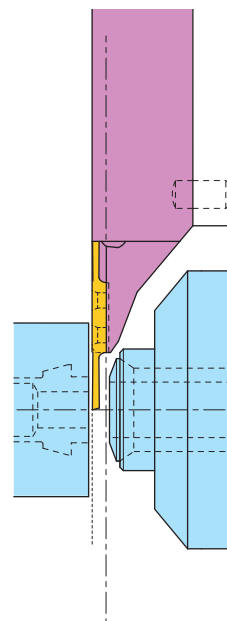
750R-DECO10

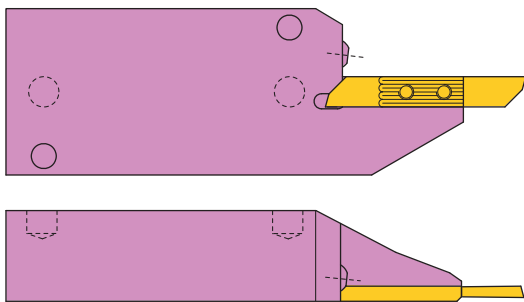


770R-DECO13

### Principle

When machining short workpieces the bar needs to be advanced slightly for sectioning when the workpiece is held in the spindle and counter-spindle, a tool taking up minimum space is required. The tool holder for the DECO 10 is equipped with an adjusting screw. This way, after sharpening, the tool can be easily advanced for repositioning, on the tool line. For larger capacity machines, the tool-holders are equipped with integrated lubrication that ensures perfect positioning of the cutting fluid jet.





770R-DECO20

### Benefits

- Enables cutting to be carried out in a "very small area".
- Despite its low volume, the shape of the tool holder means it is very rigid.
- The positioning system for the tool and the plate are "geared", ensuring perfect positioning and excellent rigidity.
- Different versions of plates are available from 1 mm wide, for sectioning in the tool line just above counter-spindle.

### Technical specifications

- Type of tool: sectioning plate tool.
- Cut width: from 1 mm to 3.5 mm depending on plate model.
- Geometry of frontal cut: 8° and 15° depending in plate model.
- For DECO 13, integrated lubrication with G 1/8" external connection.
- For DECO 20, integrated lubrication supplied directly by tool-holder plate.

### Availability

This tooling is available as standard for DECO 7/10, DECO 13 and DECO 20/26 machines.

### Information

Would you like more information about these tools? Download the full catalogue at:

<http://www.applitec-tools.com/index.php?lang=eng&frame=download>



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# THE AIR: A SOURCE OF PRICELESS WEALTH!

- The fight against atmospheric pollution is underway, cars are under ever more scrutiny, taxed if they pollute.
- Factory emissions are also monitored closely
- On a human level, the anti-smoking lobby is becoming global.
- The number of people affected by lung-related diseases<sup>1</sup> is on the increase.

In this context, and depending on the type of machining to be done, oil mists can become irritating. Tornos has the solution for all their machines, including the new Delta machines!

## Option

*Oil mist extractor for Delta 12 and 20.*

This option does not yet come with an option number. Please contact your usual sales person for more details.

## Principle

The extractor for Delta is a centrifugal extractor fan. Air is drawn up vertically by a fan and routed towards a regenerable filter cartridge which can be removed and cleaned. A self-cleaning centrifugal system continuously retrieves and evacuates decondensed particles. Before released, the vapours go through a synthetic HEPA filter<sup>2</sup> which ensures an efficiency level of 99.97%.

## Benefits

- System integrated to the machine, automatic operation.
- Reduced maintenance.
- Warning lights indicates filter needs cleaning.
- Ensure perfect evacuation of mist in machining area.
- Purifies air returned to working environment.



## Technical specifications

- Capacity 400 m<sup>3</sup>/h – Static pressure 82 mm H<sub>2</sub>O.
- Noise 61 dBA.
- EC compliant.
- Tri-phase multi-voltage BRAKE-MOTOR 0.37 kW – 230/400V – 50Hz.
- Aspiration inlet Ø 100 mm.
- Weight 31 Kg.
- Standard for filtration: EN 779-En1822 class H13.

## Compatibility

Delta 12 and Delta 20 (all models).

## Availability

This option is already available ex works. Installation on pre-installed machines possible.

<sup>1</sup> Particularly CNSLD, Chronic Non Specific Lung Disease.

<sup>2</sup> High-efficiency absolute filter. The international denomination is HEPA FILTER (High Efficiency Particulate Air) also known as "Absolute filter". A HEPA filter is able to trap airborne particles with a diameter of 0.3 micrometers with an efficiency level of 99.97%.

## IT ALL STARTED WITH AN IDEA...

...that began to take shape, making the most of technology and organization!



The last time **decomagazine** visited Leghe Leggere Lavorate (LLL) was eight years ago! Since then, the company has changed considerably. Mr. Ivo Pizzamiglio (company chairman) and his two sons Davide (Co-Managing Director and head of sales) and Matteo (Co-Managing Director and head of production logistics and purchasing) are there to welcome us in the new head office still located, as the previous one, in Buccinasco. LLL is an exemplary firm in this industrial estate and we are highly impressed with the considerable leap forward the company has achieved since our last visit.

The layout of the plant is spectacular, 3000 square metres in premises without a single pillar. Everything is very well defined in terms of production areas, temporary storage and passageways. The other departments including logistics, the meteorological room, the office for technical meetings, the dedicated finishing area with clean rooms and rooms for

special treatments, as well as finished product and materials store rooms are separated from each other and are highly functional. There are also, of course, areas reserved for the canteen and the personnel.

We are taken into the offices located in a small adjacent building. As soon as we enter a small waiting room, a magnificent wooden stairway catches the eye with its clean lines leading up to the first of two floors of offices. These are very well-lit rooms, laid out in such a way as to make working there as comfortable as possible and to simplify contact and communication with other offices.

We are led into Matteo's office. One whole wall is taken up by a large window looking out onto the workshop. Looking out, we are drawn to two very orderly rows of Tornos machine-tools. There are about twenty different versions of DECO and a further twenty Tornos cam-operated turning machines, also lined up very neatly.

We take a seat in boardroom and look forward to talking with Messrs Pizzamiglio.

### The key word: rationality

**decomagazine:** Mr Ivo, why is Leghe Leggere Lavorate such a success in the market?

**Ivo Pizzamiglio:** Our company is founded on rationality. This is a concept which can be strongly felt throughout the operations of the entire company. How to lay out the machines? Which flows will we put in place? Which machining sequences do we use? Which layout is best in terms of safety? Which system is best suited to the flow of information? If these questions are underestimated, we run the risk of jeopardising everything and the technology we would like to put in place, even the most advanced, would become inefficient due to all these difficulties. LLL is the result of this research into tidiness and cleanliness that is forever being updated and enables

us to continue reaching ever-higher levels of quality and customer satisfaction. Then we implemented our ideas and actions improve our level of understanding!

### All singing from the same hymn sheet

In line with this principle, tasks and attitudes of our employees are closely monitored and carefully channelled towards the same goal within the company's mission: the search for precision and excellence. This is why every little action like, for example, putting tools back in their right place in the most orderly fashion, is done with this goal in mind. In addition, the feeling that you are part of an efficient team makes us stronger and all of our actions benefit.

In life, we all learn to walk before we can run. This is how we have grown. Each step has helped us anticipate the requirements of our customers in order to be ready when the need arises. This concept of being



LLL: a faultless organisation at the service of its customer base, well represented by workshops lined up straight as a die.



Yes, we actually are "in a bar turning workshop"!

"open to the future" was our basis for selecting our means of production. We want the best machine tools, what we have are some of the most technically-advanced and reliable. Naturally, our machine park includes brand new and less new units but every one is, or was at the cutting edge of technology at the time it came out. The result is plain to see in terms of precision and complexity levels of parts that can be machined.

**dm: Mr Ivo, how has LLL developed over the last few years?**

**Ivo Pizzamiglio:** Over the last few years, LLL has grown both in terms of capacity of production and manufacturing technology. The company has never expanded at the expense of quality and professionalism as these elements have always been an integral part of the work of our organization. The same can be said for the highly effective assistance and collaboration with Tornos, which has been a determining

factor of our success. In a few years, LLL has become one of the main production companies of certain precision mechanical components.

### High-value parts

**dm: Mr Davide, which markets is LLL currently aiming at?**

**Davide Pizzamiglio:** To be honest, we don't believe that our manufacturing technologies are suited to all bar turning markets. As far as we are concerned, we want to make highly technological parts using particular materials.

**dm: Am I right in saying that your company is active in the medical sector? Can you elaborate?**

**Davide Pizzamiglio:** Our decision to enter the medical market a few years ago was really down to Tornos who helped us and enabled us to break into



a sector which, at the time was totally new to us. Nowadays, about 40% of our production is "medical". These are high-technology parts we produce for third parties either from the drawing given to us by the customer or we develop solutions for our customers. We are even able to carry out in-house research with highly-efficient research & development and engineering support. This is a plus for our customers!

### Impeccable production

**dm: Mr Matteo, you are in charge of logistics, purchasing and production. What are LLL's strengths in these areas and what are the challenges you face?**

**Matteo Pizzamiglio:** I have to say that we produce huge quantities of different types of parts with 3 shifts per day. To begin with, my role was to make all purchasing or production planning as reliable and as flexible as possible right up to stocking and dispatch.

All the machines are interconnected and they all transmit data on every machine or handling settings in the different parts of the workshop to the production control and test rooms and to my own office. LLL can always follow the manufacturing progress in real time. These days, I am persuaded that it is inconceivable to think that you can control production with any other system.

### A clear vision

**dm: Mr Ivo, how do you see your company's future?**

**Ivo Pizzamiglio:** First of all, I am pleased to say that already the company is in the safe hands of my sons who have realized the need to have good colleagues around them therefore forming a valuable team that will always be in a position to handle any future challenges in a positive manner.

However, to give you a more direct answer to your question, I would say that in the next 2-3 years, LLL's main task will be to continually find means of breaking into "difficult" and "niche" markets with a constant search for ever more efficient production capacities. Without close cooperation with the "machine-tool world", this development is impossible!

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### LEGHE LEGGERE LAVORATE IN BRIEF

Year company founded:	1951
Change of strategy:	1986 – become specialized in high-technology parts.
Machining equipment:	35 automatic turning machines with capacities of 1 to 20 mm. 20 DECO NC turning machines with capacities of 1 to 25 mm.
Special procedures:	The company is equipped to carry out the following internal procedures: sanding, polishing, cleaning (ISO8) and decontamination.

## REACHING EL DORADO...

To round off the technical article on managing tool life (page 40), decomagazine met up with Marc and Jacques Rossé, Directors at Essor in Court who have recently started using this system on their machines. Rendezvous with those living the bar turning adventure with a passion.



Its "classical" and "somewhat austere" presenting front conceals a genuine passion for excellence.

### The Swiss Silicon Valley

The company located in Court, in the French-speaking canton of Berne is an SME that goes back nearly one hundred years. As soon as you are on the premises you can feel the history, but not in an old, dusty way! The company benefits from this expertise as it launches itself into the future.

In the El Dorado of bar turning, a clear vision lights up the way.

The duo in charge of the company today is Jacques Rossé, Technical Director and Marc Rossé Sales Director. When asked about the passion that seems to be their driving force (and which is easy to see on their Internet site [www.essor.ch](http://www.essor.ch)), they reply and their attitude is proof that bar turning is the finest job in the world...

For many, it has represented a sort of El Dorado. Just like Silicon Valley in information technology, the valley of Court has seen many companies grow.

Fortunes have been made in the space of a few years and many companies have also disappeared.

Bar turning, of course, has represented and still represents a high-potential sector open to motivated entrepreneurs. But just like when El Dorado was discovered, one must be wary of what looks like treasure!

### The secret: passion!

Indeed, it is this passion that strikes you when you meet the Rossé brothers, along with this precision and this search for balance! This redefinition is ever-present on their values but also those of the company. Even if the arrival of NC turned the bar machining world on its head in the Eighties, even if the profession has changed considerably and today's machining solutions no longer require the same level of expertise, the men who work on the machines still make the difference. «Over the next few years, our



Machine tools? Just think about it! These are most assuredly the means of achieving ambitious objectives!

bar turners on cam-type machines will be going into retirement. We have to think about who is going to take over... take over working in numerical control,» says Jacques Rossé.

### Controlled change

Over the years, Essor has moved from manufacturer in the watchmaking industry to manufacturer of finished products, including lighters and razors, for example<sup>1</sup>. Essor has recentred their activities on bar turning (its main profession) for several years now, under the leadership of the current directors. About fifty employees manage a park of about one hundred CNC and cam-type machines. 24 hours a day, 6.5 days out of 7, this park produces ever more complex parts for a range of activity sectors including the automotive, electronics and home automation to name but a few. At the heart of Essor's expertise lies

small diameter components, even if several 20 or 26 mm diameter capacity machines are in production.

With 85% of their activity abroad, Essor places a great deal of importance on customer relations, the human touch making all the difference and it is with pride that Mr Rossé tells us that their "top ten" customers have been with them for several years. This can be difficult because when it comes to international groups, buyers often come and go and it is not easy to build a lasting relationship.

### Every minute counts

How do you ensure the long term success of a company in a constantly changing market? The answer seems straightforward. Quality must be faultless and the technology and workforce need to enable ever more complex parts to be produced within the agreed time frames. Wherever possible, and therefore in the majority of cases, the workpieces must be finished without rework to be cost effective! Therefore, what counts is to be able to produce,

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<sup>1</sup> Bursting with innovation, these products were unable to compete with the commercial powers of the leading names in this area, like Bic or Remington, for example.

produce and produce again... always to a faultless level of quality. The partnership mentioned earlier is based on this parameter: the customer knows the quality of the parts delivered is excellent when the order is placed.

«For Essor, it is a point that needs analysing continuously. Our parts are transported directly onto assembly lines and we know that we simply have to deliver top quality.» continues Marc Rossé.

Constraints also come from the change in materials. Although the majority of parts were made in brass a few years ago, this material only represents 20% of machined parts at Essor today. Materials have become tougher and more demanding for the machine tools.

Tools wear down, so this is where tool wear management makes all the difference. By using control data concerning tool drift, it is easy to programme automatic corrections in the NC. When every minute counts, being able to let a machine work unsupervised all night, for example, while being assured that tool wear has been compensated for is one less thing to worry about! Even if the Rossé brothers tell us

they are not kept awake at night, the entrepreneurs' responsibility is a heavy charge to bear. So, thanks to this device, Tornos can offer them extra "production minutes", but also more peace of mind, which is maybe also an El Dorado!

## ESSOR IN FIGURES

Year company founded:	1912
Employees:	50
Machine park:	100
DECO park:	12
Average number of start ups:	one per day
Certification:	ISO 9001:2000
Key words:	precision, passion

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### Automatic correction of tool wear

This new function available with the "Tool life management option" enables the user to programme an automatic wear correction of the X or Z axis. Two different ramps per axis can be programmed.

C) AUTOM. WEAR ADJUST. (X RAMP) 1/6

TOOL		PARTS 1	R1 WEAR	PARTS 2	R2 WEAR
T11	X10				
T12	X10	100	5	200	5
T13	X10				
T14	X10				
T15	X10				
T16	X10	50	8	100	6
T17	X10				
T18	X10				
T19	X10				
T20	X10				

HELP = [ ]  
MENU = [ ]  
T...  
MDI \*\*\*\* \*  
[T-SRCH]{INIT }{FAVOR. }{CLR LIN}{CLRTAB}

D) AUTOM. WEAR ADJUST. (X SEQUENCES) 1/6

TOOL		R1 START RMP	R2 START RMP	ON
T11	X10			
T12	X10	0 [1]	900 [2]	ON
T13	X10			
T14	X10			
T15	X10			
T16	X10	0 [1]	600 [2]	ON
T17	X10			
T18	X10			
T19	X10			
T20	X10			

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E) AUTOM. WEAR ADJUST. (X VALUES) 1/6

TOOL		TOT. PRS RMP	PTS	TOT. COR	RMP
T11	X10				
T12	X10	0	0	0	[1]
T13	X10				
T14	X10				
T15	X10				
T16	X10	0	0	0	[1]
T17	X10				
T18	X10				
T19	X10				
T20	X10				

HELP = [ ]  
MENU = [ ]  
T...  
MDI \*\*\*\* \*  
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1st page: Programming of correction applied after a number of machined workpiece.

2nd page: Programming of the start of the automatic correction for each ramp.

3rd page: Production monitoring page for automatic wear correction.

These three pages are also available for the Z axes.

### Productivity gains

Automatic tool wear correction was developed in collaboration with Essor. «The development of new functions in close collaboration with our customers is always a guarantee of success» – Marc Wyss, Product Manager.

Essor, presented on page 37, were looking for ways of increasing their productivity:

- by reducing sources of errors
- by increasing the number of night time production hours.<sup>1</sup>

Essor had no hesitation in becoming a partner in this project. «This function enabled us to gain production hours. It is suited to the production of long production runs, particularly in stainless steel. Operation is intuitive. The data to be entered is based on the analysis of the results of our internal inspections,» – Jacques Rossé, Technical Director.

Automatic tool correction enabled Essor to gain up to 6 hours of production per night on a DECO 10. This function is even more valuable when large diameters need machining.

<sup>1</sup> The 8 hours of production during the night are not supervised by operators.

## SOURCES OF OPPORTUNITIES!

**Farming in the Spanish Basque Country is a traditional intensive association of maize growing and cattle rearing. There is a flourishing fishing industry on the coast. However, there is substantial industrialisation in the region and it goes back a long way. The main industrial sectors aeromechanics, heavy industry, food-processing, the timber and paper industry and the textile industry.**

**83% of Spain's machine tool production comes from the Basque Country. 30% of Spain's production for the automotive industry also comes from this region.**

Microdeco, one of the companies in this sector, is located in Ermua, a few kilometres down the road from Bilbao. It is considered a pioneer, soon to celebrate fifty years of activity. 1958 was the year when Mr Manuel Iraolagoitia arrived in Moutier for a six-month training course at Tornos. At the time, the region's young people competed with each other to find ingenious ways of becoming entrepreneurs, the one with the best idea founding a company. Back in Moutier after his course, the young man eventually created Microdeco in 1963. With a very impressive current array of DECO and multispindle machines

(SAS, MULTIDECO, MultiAlpha), the company still displays the same state of mind, this willingness to embark upon new journeys, always venturing further than before. Mr José Iraolagoitia, the founder's son and current managing director also did a six-month course in Moutier to fully take on board the concepts of the company's production methods.

During our discussion, Mr Iraolagoitia demonstrates that he also has this same iron will to develop the company further, «problems are always a source of opportunities. It's our role to meet these challenges» he explains.





### The organization: opportunities!

**decomagazine:** Mr Iraolagoitia, Microdeco is mainly involved in the automotive sector, which is well known for being a very demanding sector. How do you deal with this?

**José Iraolagoitia:** Our customers are mainly "first level" prime manufacturers (T1), we are the sole judges of our workpiece management which is our responsibility. As we deliver to production lines direct, we are responsible for just-in-time<sup>1</sup>. As a result, our organization needs to be perfect to cope with the latest production methods.

**dm:** What are your specificities in terms of organization?

**José Iraolagoitia:** Naturally, we are ISO 9001, 14001 and TS16949 certified for the automotive industry. The company is sub-divided into «mini-companies» in charge of delivery times and quality.

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<sup>1</sup> Just-in-time involve delivering on time but also complying with the agreed quality, quantity and conditions.

The responsibility of everyone is valued. In addition to our flexible and adaptable organization, our strong points are our technological expertise, our openness to dialogue with customers and a continuous investment strategy.

**dm:** You supply to your customers' assembly lines direct. Is this not a risk?

**José Iraolagoitia:** We maintain an overcapacity in production so as to always be able to cope with any problems. We can not envisage a break in the supply chain. As our personnel is multi-skilled and mobile, we always have a capacity for reaction which adds flexibility and serves our customers' needs.

### In times of crisis: opportunities!

**dm:** How do you train your staff?

**José Iraolagoitia:** We have a very clear training policy. Our employees go through different internal units, following a training program. We have implemented an entire system of experience sharing via operations meetings, systematic problem solving and the quality system.



View of part of the production equipment at Microdeco, DECO machines can be seen at the rear on the left. In the foreground, the numerical multisindle workshop, Mr José Iraolagoitia, managing director at Microdeco (left) and Mr Isaac Acrich, director of Tornos Ibérica.





MultiAlpha and MultiDECO machines offer extraordinary potential at Microdeco. Each machine is fitted with its vapour extraction unit to ensure best possible working conditions.

**dm: You place considerable importance on the organizational aspect of the company. Isn't this a lot of work to set up and use?**

**José Iraolagoitia:** It's a question of culture. We all know where the company wants to go and the system is a tool in our bag, not a constraint. For the implementation of the system, we made the most of the crisis during the nineties and the receptiveness of our staff. We decided to put in place ISO certification, to focus on quality and our customers and of course to develop our internal resources and our staff. We read everything we could on the subject. We discovered a completely new world. We redesigned the strategy of the company around three main areas of activity: Technology, quality of the product and internal organization.

**dm: You mention culture. Are you also involved in social responsibility?**

**José Iraolagoitia:** Absolutely. We received a European Quality Award for our commitment in this area. We work on optimum integration of our employees within the company, particularly fostering a good work/life balance. We also develop the integration of the company within its environment. For

example, we have preserved the natural habitat when designing our surrounding area. In the same vein, we handle all materials (oils, swarf for example) in a way which does not harm the environment.

During the recent finalisation of our facade<sup>2</sup> we planted nearly 200 trees.

**Employees: opportunities!**

**dm: What influence is there on company results?**

**José Iraolagoitia:** If our personnel is loyal and motivated, it's also because it shares the values of the company. Seeing them applied to all our productions and our operations motivates us to do all we can for our customers (and therefore for the company). Our prime manufacturers, some of whom have been doing business with us for 50 years also know they can count on our staff, it's great added value. The greatest potential for new projects is via our existing

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<sup>2</sup> NDLR: See pictures on page 46.



customers. Every contact with them, at all levels, R&D, engineering, sales or production, for example, is an opportunity for strengthening our relationship. Our staff are one of our strengths!

#### **Machines: opportunities!**

**dm: You have the best there is in personnel and organization, it takes more to deliver the best parts... could one say you also have the best machines?**

**José Iraolagoitia:** As part of our investment strategy, we have always chosen the best models from Tornos, whether single-spindle or multispindle, we are at the cutting edge of technology! I explained that our philosophy with our customers is to create a genuine partnership with a long-term vision. As we have been working with some customers for 50 years, Tornos has been a loyal supplier since the company was founded!

These days, machines must not only produce 24 hours a day, 6 days a week, but also produce parts of an ever-increasing complexity in difficult materials. Our aim is to assure a maximum finish for the parts and to do this, the new MultiAlpha machines which

enable us to carry out complex machinings on the rear of the part work wonders.

**dm: If the machines enable you to always do extra, aren't they always more difficult to use?**

**José Iraolagoitia:** We are ardent supporters of TB-DECO, the programming software from Tornos enables us to imagine very intricate machinings with ease. Generally speaking, the first execution of the program is done in the «Engineering» department, but the users of the machines all also operate TB-DECO perfectly and participate in the program's optimization. Our operators have been trained in Moutier and they have close ties with Tornos Iberica where the technical staff also offer great support if required.





The Microdeco facade and the integration of different buildings in harmony. From of the outside, a green technical environment.



Viewed from the inside between the facades, we are in the middle of a little forest. The teak flooring invites you to take a stroll, a few metres from the main road and the facade of the factory. It's quite a feat, a fine illustration of the entrepreneurial spirit at Microdeco!

**dm:** I have heard that you were one of the first to buy a MultiAlpha Chucker machine<sup>3</sup>, what led you to make this choice?

**José Iraolagoitia:** Once again, the company has adapted to market conditions. With increasing raw material costs, working from die-cast workpieces rather than full machining is becoming a cost-effective solution. We are going to produce series of several million parts on these machines. With such volumes, the fact that the «chucker» is less flexible than a NC multispindle turning machine which enables us to produce fractioned series with ease is not totally unacceptable. In addition, requiring at least a week's set up, we can even move from the chucker to a standard machine, working on a bar. It is not planned, but if necessary, we can schedule it.

### Collaboration: opportunities!

**dm:** For the fine-tuning of «your chuckers», you have worked in collaboration with Tornos. Are you often open to collaborations?

**José Iraolagoitia:** Combining experiences with the objective of finding solutions is very gratifying! Above all, in the context of the chucker, the system needs to be adapted to our workpieces, but we have many other collaborations, for example with colleagues within the context of our improvement programme for Tornos products. We also work together with our customers to find the most high-performance solutions. This can be technical, but also strategic. For example, one of our large prime manufacturers required more capacity and response in Romania, we joined forces and opened Microdeco Romania to accompany our customer and provide him with the same service he received in Spain.

We recently created IAC, the Automobile Intelligence Center, with industrial partners on a regional level, training centres and universities. It is actually a «college of experts» in their fields with the common aim of developing projects in high-technology, quality and precision for the automotive sector. The construction is nearly complete and a good part of our

<sup>3</sup> Machine working with collet on die-cast or forged workpieces and no longer using bars and a feeder (see page 55).

resources in R&D will be going into it by summer 2009! This new platform will bring us greater possibilities for development, more resources, more innovation but also greater visibility as far as prime manufacturers are concerned.

The collaboration is a vital tool, even if it does occasionally come with some risks.

Risks are also opportunities!

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## MICRODECO AT A GLANCE

Founded:	1963
Number of employees:	137
Markets:	Automotive (majority), electronics and office automation.
Diameter ranges:	6 to 32 mm but priority on 15 to 26 mm.
Production sites:	Ermua (Sp), Bilbao (Sp) and Oradea (Ro).
Series sizes:	From 100 000 to several millions.
Certifications:	ISO 9001:2000, ISO 14001, ISO/TS-16949:2002.
Distinctions:	Silver Q and Gold Q. Prix Basque de la Qualité de la Gestion [Basque Country award for quality of management] awarded by the Basque Government to companies showing an excellent level of Management. Prix Spécial de l'European Quality Award d'EFQM in recognition of their Corporate Social Responsibility.



# 15 300 POTENTIAL TRADE CONTACTS PER DAY!

With over 92,000 visitors, the latest IMTS in Chicago was a perfect example of how the trade fair remains an essential medium for machine manufacturers. Stands however, are getting ever bigger, higher and more expensive. Indeed may we wonder where all this excess is taking us. The talk of budgets at IMTS, the "American EMO" makes you wonder. Even the "small manufacturers" invest several million dollars to show off their company.



## What is the return on investment?

As manufacturers do every year during the budget period, questions are asked and solutions looked for (see the article on Virtual DECO on page 8). Use new methods? Yes, that's a possibility... but these methods are often linked to the trade fairs themselves.

In 2009, the liberalisation of the «EMO regulations» gave rise and will give rise to many other events and an EMO year will be less and less «special», even if this event will remain an essential reference point. Unfortunately all these new fairs take up a lot of resources! Eventually, manufacturers may not participate in certain events and they will probably base their decision on the statistics from these events.

How many visitors? How many offers to be made? How many machines sold? Hire costs? Square metres? Cost per visitor? A lot of companies compile such statistics. They will play a part in helping companies decide which fairs to target.

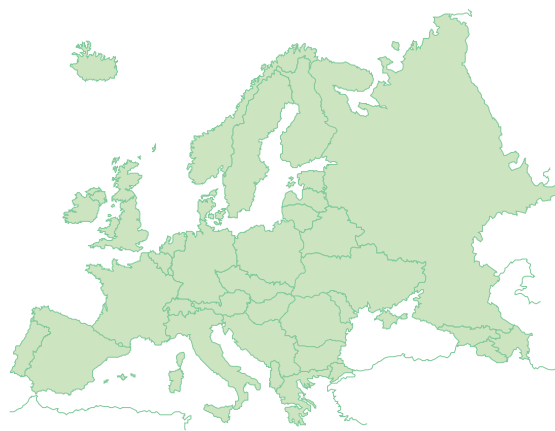
These kinds of issues are not going to slow down the commercialisation of products, but simply ensure the best media! The trade fair is perhaps a «necessary evil» but it is also a wonderful business lever and reinforces the presence and image in the market.

Willi Nef, Sales and Marketing Director at Tornos gave us the events programme for Tornos (see below). The Swiss manufacturer is going to participate in no fewer than 53 trade fairs!



## Exhibitions

Europe				
Germany	Pforzheim	Tornos Technology Days	1st quarter 2009	1st quarter 2009
Netherlands	Rotterdam	Anniversary 90 years Esmeijer	2.2.2009	27.2.2009
Italy	Padova	Ven-Mec	6.2.2009	9.2.2009
Switzerland	Moutier	Journées Horlogères	16.2.2009	20.2.2009
Germany	Leipzig	INTEC	24.2.2009	27.2.2009
Italy	Milan	Mido	6.3.2009	9.3.2009
France	Lyon	INDUSTRIE 2009	10.3.2009	13.3.2009
Spain	Barcelona	Maquitech 2009	10.3.2009	14.3.2009
Switzerland	Moutier	Medisiams	10.3.2009	13.3.2009
Italy	Parma	Mecspe	19.3.2009	21.3.2009
France	Lyon	Mondial des Métiers	19.3.2009	22.3.2009
Switzerland	Basle	Baselworld	26.3.2009	2.4.2009
France	Marseille	J.M.I	31.3.2009	2.4.2009
Germany	Pforzheim	Tornos Technology Days	2nd quarter 2009	2nd quarter 2009
France	Besançon	MEDTEC	22.4.2009	23.4.2009
Germany	Villingen-Schwenningen	TURNING DAYS	23.4.2009	25.4.2009
Switzerland	Lausanne	EPHJ	12.5.2009	15.5.2009
Israël	Tel Aviv	Technology International Exhibition for Machinery	20.6.2009	23.6.2009
Italy	Milan	EMO	5.10.2009	10.10.2009
Germany	Pforzheim	Tornos Technology Days	4th quarter 2009	4th quarter 2009



East Europe				
Russia	Novosibirsk	METALLOBRABOTKA	17.3.2009	21.3.2009
Poland	Kielce	STOM	25.3.2009	28.3.2009
Turkey	Istanbul	TATEF	31.3.2009	5.4.2009
Slovenia	Celje	FORMA TOOL	21.4.2009	24.4.2009
Czech Republic	Budapest	Machtech	19.5.2009	22.5.2009
Russia	Moscou	MASHEX	18.5.2009	22.5.2009
Slovenia	Nitra	Eng. Ineering Fair	19.5.2009	22.5.2009
Poland	Poznan	MACH TOOL	15.6.2009	18.6.2009
Bulgaria	Plovdiv	Technical Fair	September	September
Poland	Krakow	EUROTOOL	21.10.2009	31.10.2009



### America

Porto Rico	San Juan	Medical Device	29.1.2009	30.1.2009
United States	Anaheim, CA	MD&M West	10.2.2009	12.2.2009
United States	Los Angeles, CA	Westec 2009	30.3.2009	2.4.2009
United States	Colombus, OH	PMTS 2009	28.4.2009	30.4.2009
Brazil	São Paulo	Feimafe	18.5.2009	23.5.2009
United States	Springfield, MA	Eastec 2009	19.5.2009	21.5.2009
United States	New-York, NY	MD&M East 2009	9.6.2009	11.6.2009
United States	Las Vegas, NV	AMMO 2009	17.8.2009	19.8.2009
United States	Minneapolis	MD&M Minneapolis 2009	21.10.2009	23.10.2009

### Australia

Australia	Melbourne	Austech	12.5.2009	15.5.2009
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### Asia

India	Bangalore	IMTEX	22.1.2009	28.1.2009
Taiwan	Taipei	TIMTOS	2.3.2009	7.3.2009
Singapore	Singapore	MTA	25.3.2009	28.3.2009
China	Beijing	CIMT	6.4.2009	11.4.2009
Vietnam	Hanoi	MTA	8.7.2009	11.7.2009
China	Shanghai	EASTPO	15.7.2009	18.7.2009
Indonesia	Jakarta	MTT (Indonesia)	10.8.2009	13.8.2009
China	Shanghai	MedTec	8.9.2009	10.9.2009
Vietnam	Hoshimi	MTA	22.9.2009	25.9.2009
India	Mumbai	IDEM (Dental)	23.10.2009	25.10.2009
China	Guangdong	DMP	Mid-November	Mid-November
Thailand	Bangkok	ThaiMetalex	20.11.2009	23.11.2009
Indonesia	Jakarta	MTI	3.12.2009	8.12.2009

(Subject to modifications)

The events listed below are for information only.

If interested, please visit the Internet site <http://www.tornos.com/news-exhibit-e.html> for the latest participation status.

## TAKUMI GETS PREMIER PERFORMANCE FROM TORNOS

Manufacturing cardiovascular components, Takumi Precision Engineering Ltd is based at the heart of the Irish medical manufacturing industry in Limerick. Takumi (Japanese for craftsman or artisan) is one of Ireland's leading subcontract manufacturers serving the medical, pharmaceutical, semiconductor, telecom and electro-mechanical industries.



Workpieces which would make a craftsman proud!

When Takumi had a number of contracts for complex turned parts that could not be productively made on its fixed head turning centres, the company turned to Tornos and its DECO 13 sliding head turning centre. Supplied by Irish machine tool agent Premier Machine Tools, the DECO 13 with 16 mm bar capacity was a risk well taking as Takumi Managing Director Gerry Reynolds recalls: "As a general subcontractor, buying a sliding head lathe was a chicken and egg situation. We had a small amount of work suited to the machine but not enough to justify the purchase. We knew that if we acquired the machine it would be a "leap of faith" as we didn't have the work to run it continually, but if we didn't buy the machine we would be missing out on work."

Following the acquisition, Takumi moved two components that were causing difficulties on its fixed head turning centres to the 6-axis Tornos DECO 13.

One 15 mm diameter and 125 mm long cardiovascular component was complex and required two operations that took over 8 minutes to complete, with a batch of 200 taking four shifts to complete. Now, the ongoing batch that runs 6-8 times a year is produced on the Tornos in one shift with each part taking little over two minutes. The ISO 9001:2000 and ISO: 14001 registered company now sets the job and it runs unmanned until the job is finished. Beside the productivity improvement, the parts no longer require an operator to stand at the machine loading and unloading all day long.

"We bought the machine for its capability and productivity potential and it immediately proved its value on the first couple of jobs we transferred from the fixed head machines. Since transferring the first few jobs to the Tornos the machine has found its own complex work. The machine now runs two shifts a day (up to 80 hours a week) with complex

components that would have been difficult for us to produce without the DECO," continues Mr Reynolds.

Established in 1998, Takumi has impeccable quality standards that are recognised through its prestigious customer base that includes names such as Dell Computers, IBM, Motorola and Stryker Howmedica to name a few. The 38 employee company has little

long set-up time, we run similar component families that keep the setting times to a minimum," says Mr Reynolds.

On its 9,000 sq/ft state-of-the-art facility, Takumi has 27 machining and turning centres and the Tornos is the most profitable machine on site. "We are now changing the way we measure our productivity and profitability and we are looking at each individual



DECO: the most productive and the most cost-effective!

doubt that the precision and repeatability of the Tornos contributes to its remarkable quality levels. Producing parts from aluminium, brass, PTFE and plastic through to more difficult materials like stainless steel, titanium, cobalt chrome and vitallium, the rigid Tornos comfortably delivers high quality surface finishes with accuracy and repeatability levels second to none.

"The Tornos has halved our cycle times and trebled our productivity levels. With the Tornos we don't need a man stood at the machine loading and unloading the machine all day. As soon as a batch is started, it runs through to completion without taking a break and this has boosted our productivity measurably. The Tornos produces average batches of 100 to 200 with some parts running up to 1000 off batch runs. With small batch quantities we have to re-set the machine 3 to 4 times a day for new jobs. Despite the misconception of sliding head lathes having a

machine according to monthly output and profitability. Over the last 16 weeks the Tornos has seen the most work invoiced against it. It has proven our most productive and profitable machine over the four month period and considering we have a high specification machine shop, this is some accolade," concludes Mr Reynolds.

For more information please contact:

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# REDUCTION IN COST OF PARTS, ANOTHER MILESTONE REACHED!

Sometimes, moving from single-spindle to multispindle technology may enable parts manufacturing costs to be reduced ... but once we are in multispindle technology, where do we go from there?

How can costs be reduced still further?

Depending on parts and machining quantities to be carried out, the blank clamping procedure or "Chucker" is an option. By replacing the bar feeding system by systems feeding die-cast or forged workpieces, production costs can be reduced dramatically!



"Slide" feed system together with a vibrating bowl.

## A simple basic observation

Based on this observation, Tornos proposes three types of Chucker solutions which can be adapted to MULTIDECO, MultiAlpha or MultiSigma machines. The choice between the three being made based on geometry of the workpiece and the operations to be carried out.

The first benefit, regardless of the workpiece to be machined, is the reduced floor space of a Chucker machine by not having a feeder. Using workpieces which have already been rough-finished reduces

machinings and therefore the cycle times and swarf generated. Depending on the material price, this can mean a considerable saving. Compared to solutions in bars, the Chucker solution also enables special profiles and even non-symmetrical shapes to be loaded while guaranteeing positioning.

The finest? These solutions are based on standard machines and use the same programming system. An integration is therefore easily possible in a workshop working «in bars» (for more info, see the Microdeco article on page 42).

### Three fully-adaptable versions

The Chucker system comes in three different versions. First there is the simple inclined loading (fed by a vibratory bowl feeder, for example). Then follows a more elaborate system with integration of a robot. The third possibility comprises a complete solution with loading and unloading by robot. These different versions are completed by diverse peripheral equipment including palletisation, feeding system, measuring means or positioning. Chucker machines also offer the option of increasing maximum machining diameter to 40 mm<sup>1</sup>. The feeding system is adapted to the part or the intended family of parts.

### The best of both worlds

Manufacturing a Chucker multispindle turning machine is a challenge taken up by Tornos for 50 years! Indeed, ever since the AS then SAS and BS machines, Tornos has always offered this solution to its customers. This way, machine parks still have different Chucker models still in activity. More recently, the manufacturer has also adapted this technology on to the CNC 632 then MultiDECO, MultiAlpha and MultiSigma. If the feed system changes, the features of the machines do not! Even better! Thanks to the reduction of operations to be done, machining in «2x4» on a eight spindle machine is more often possible and highly cost-effective. The complex counter operations are of course still possible. In fact, only the loading is different. In certain cases, it is simply the best of both worlds!

### Large volume required!

Even if numerical multispindle machines are for the most part dedicated to large series runs, the Chucker system requires even larger series! Is it really something which exists on the market? To answer this question, let's talk automotive. The global market is estimated at 60 million vehicles per year. Let's



<sup>1</sup> Based on the parts to be produced and the machines used. For more information, contact Mr Rocco Martoccia (contact details at the end of this article).

Machining area showing the loading system. Each project is specific depending on the parts to be produced. In this example, the positioning of the part in the counter-spindle is assured by a manipulator gripper.

assume that each vehicle has 5 airbags and that each airbag requires one turned part, this represents 300 million parts. Suppose that a company works 300 days per year, it therefore makes 1 million parts per day! A typical airbag part is produced at 8 parts per minute on a Chucker multispindle. Therefore, let's assume that, with an efficiency rate of 80%, a machine working 24 hours a day produces 9200 parts per day. Bases on this calculation, it would therefore require 109 machines working 24 hours a day, 300 days a year to produce this part! The potential therefore exists.

#### **Tailor-made as standard!**

Why choose the robot or the slope? The cycle time of the workpiece is the decisive element. In the case of a rapid part (a few seconds), the robot is to be avoided because its operation time is too long compared to the time required to produce the part. The machining time actually determines the time authorized for the loading and unloading because the cycle time must not be slowed for handling reasons.

How to establish which is the best solution? Even if the machines are standard elements, each case is specific and the solution is finely adapted.

Would you like further information concerning Chucker solutions? Please contact Mr Rocco Martoccia at Tornos at the following address:

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## **CHUCKER SOLUTION: IN SHORT!**

### **Limitations of the system**

- Development "tailor-made" per part family

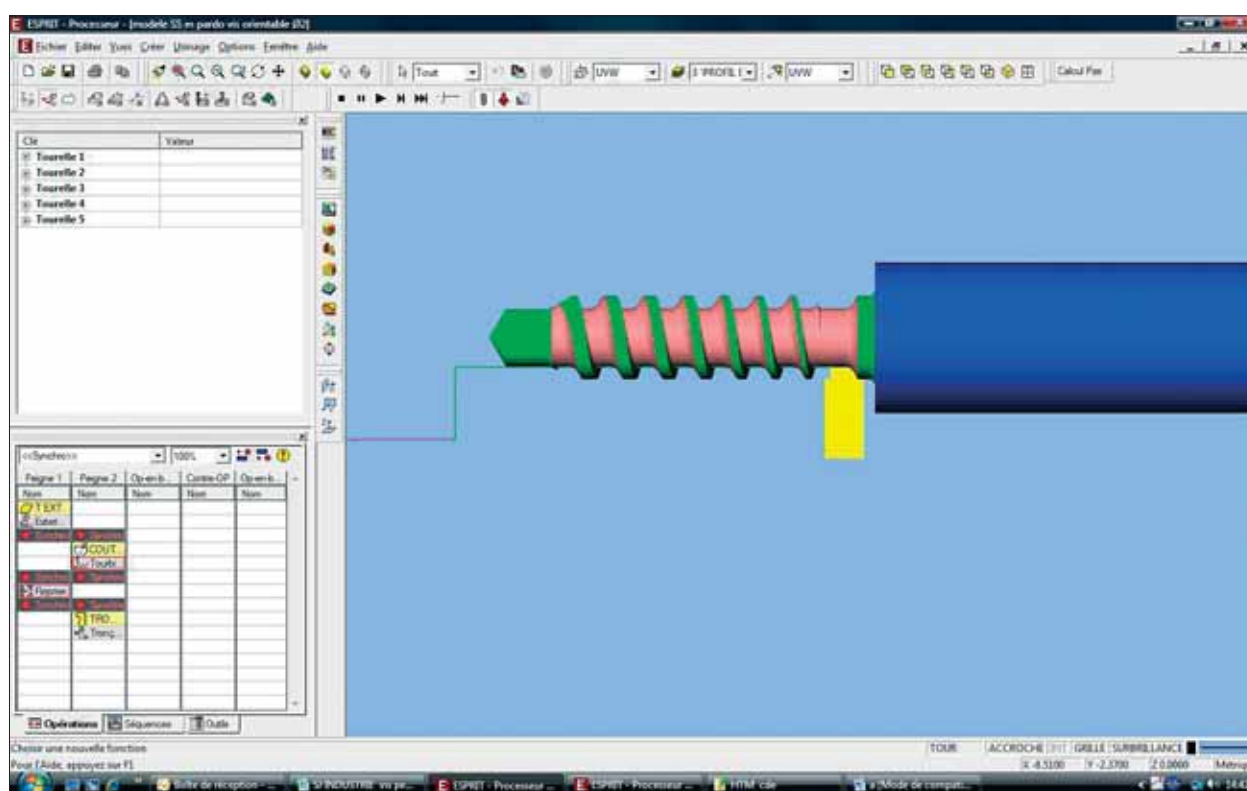
### **Benefits of the Chucker solution**

- Reduction in parts costs
- Reduced floor space of machine
- Reduced swarf
- Loading up to 40 mm
- Possibility of machining special profiles
- Loading of non-symmetrical material
- Main strengths of the standard machine conserved

## TORNOS-ESPRIT THE TACTICAL STRIKE ON THE SURGICAL SECTOR

The orthopaedic industry is a sector enjoying a considerable growth period at present, and its products need to become ever more sophisticated if they are to respond successfully to the continuously rising demands of surgical applications.

HTM (High Technology Manufacturing), a company located in Péronnas in the Ain region has specialised in the production of screws for orthopaedic applications as well as other cutting-edge technology sectors such as armaments and aerospace. HTM selected Tornos as its partner for machines, and chose Esprit for its CAD needs. We are now going to find out why they did so.



This screw has a tapered core and a triple thread with variable pitch. The workpiece is about 1.5 cm in length.

### The hallmark characteristics of HTM

The company produces prototypes and more than 50,000 screws on an annual basis and it subcontracts a high proportion of this work to a large American group of companies, currently the leader in global distribution of products for this rapidly expanding niche market. One of the defining features of HTM, the company can provide a comprehensive range of services including machining as well as all other related processes. Examples would be engraving, conditioning, and electrolytic polishing and sanding among other processes. Its competitors only provide the workpiece, with no added refinements.

### Bar turning: One of the specialties of Tornos

At a very early stage Mr. Sibelle, the man in charge of CAD, selected Tornos as his machine supplier based on his impression that our expertise in this sector was very well founded. «Very few companies are involved in the same field as we are, and only the Tornos team appeared able to come up with what we were looking for when we presented the problems associated with our screw production activities», confirmed Mr. Sibelle. The machine, a DECO 13, entered service back in 2006. During the start-up phase, HTM benefited from excellent technical support from the Tornos team based at St Pierre in



Faucigny (74). Mr. Sibelle also makes a point of naming Louis Bélet (Switzerland), a company renowned for the technical quality of its cutting tools.

### The reputation of Esprit

Due to the complexity of the workpieces it manufactures, having a CAD system in place was absolutely essential. The staff at Tornos France was the ones who recommended Esprit, because some of their customers, all big names in the medical sector were already using this CAD solution and had expressed their satisfaction with it. MHAC Technologies, a specialist dealer of Esprit products in the Rhône-Alpes region of France, then emerged as the ideal partner.

Mr. Pardo, the Applications Engineer at MHAC Technologies, in collaboration with ICAM (the company which distributes Esprit in Switzerland), established an Esprit/TB-DECO application that automates the programming process for these small surgical screws. Here again, Mr. Sibelle was pleased to mention the importance of good technical support: «Expertise coupled with superb levels of availability on the part of MHAC Technologies ensured an excellent collaboration.»

### The benefits

Thanks to an investment in a Tornos machine and the Esprit CAD software, machine changes are no longer required. «You save time! Before this innovation, some machining had to be done on machine A, followed by finishing operations on machine B. Now, our workpieces can be machined and finished all at one time, on one and the same machine», confirms Mr. Salas, the company Director. At the end of the day, this investment in machinery and CAD has delivered a time saving of about 20%.

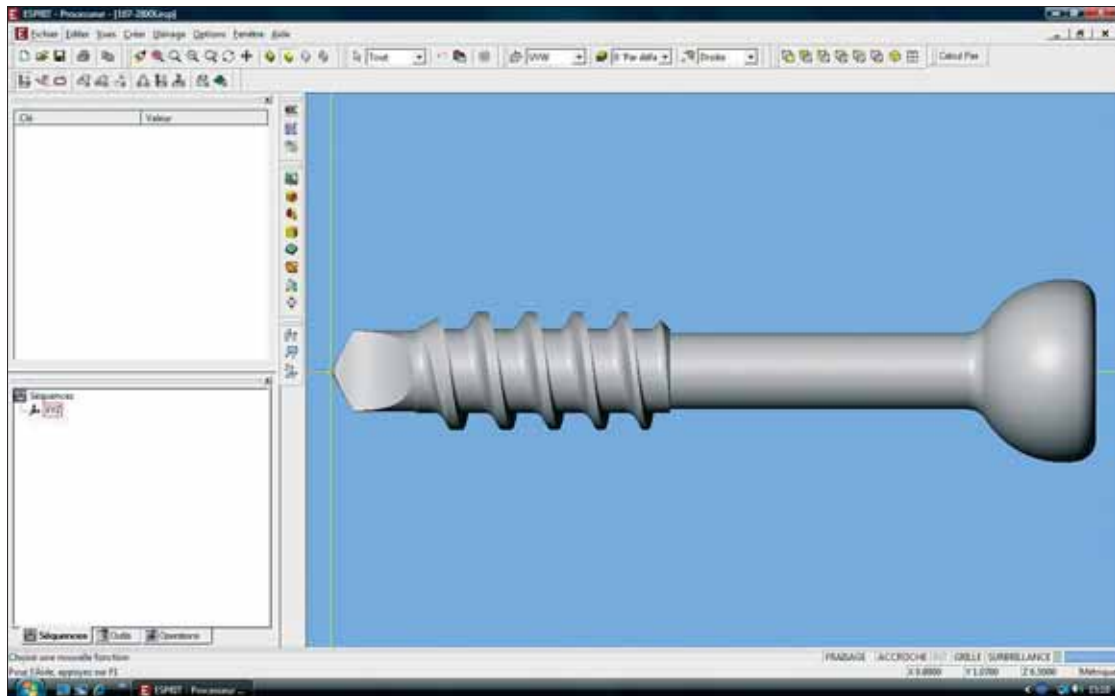
Beforehand, to quantify a job, we had to make a very approximate estimate of the machining time required. However, now that we have Esprit, we are able to define precisely how much time is required to machine any given workpiece. Thanks to extremely precise simulation, we are also able to verify the fea-



Mr. Sibelle busy writing an Esprit program.



Mr. Jacques, machine-setter on the DECO 13.



sibility of our machining operations, and to do so without first having to operate the machine.

With Esprit, it is very easy to machine families of workpieces. «A quick and simple function enables the operator to alter workpiece dimensions and to obtain a suitable machining program instantaneously. In the past, we had to create 20 different programs to suit 20 different sets of dimensions», explained Mr. Sibelle.

In a nutshell, we achieve better productivity while remaining right at the cutting edge of precision.

HTM management all share the firm view that technical support has a crucial role to play. «You realize that, without proper investment and the ability to call in technology specialists from Tornos and MHAC Technologies whenever you need them, it would be quite impossible to achieve results of this calibre.»

#### New projects for HTM

The company is in very good shape indeed and is planning to invest in a new machine in early 2009. This is sure to be a DECO 13, enabling the business to respond to ever growing demand for its products. The team is also committed to launching the production of implants and prosthetics in the very near future, as soon as it brings Esprit milling to bear on its machining centres.



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## REGO-FIX: "SWISS MADE" FOR OVER 50 YEARS

Focus on the highest levels of precision and always on the move – this is the recipe for success at REGO-FIX AG, Swiss manufacturer of precision tool holding products with headquarters in the Swiss Jura region.



REGO-FIX Headquarters in Tenniken.

### From a one-man firm to a "Global Player"

Fritz Weber founded the company in 1950 as a one-man firm in Reigoldswil and turned it into a limited company in 1980, when the "REGO-FIX" trademark became the name of the company. Today, REGO-FIX AG, with its headquarters in Tenniken, is a global company with an extensive network of distributors and its own offices in the USA, China and Germany. Under the leadership of the second generation, the REGO-FIX group now has 190 employees worldwide, 170 of whom work in the production facility in Switzerland.

At the root of the continuous growth is the constant technological achievement of innovative employees, including the development and patenting of the ER tool holder system. This system has not only become an industry-standard clamping device but was also affiliated to the DIN German industry standard 6499 (ISO 15488) – a virtual crowning moment.



### World's widest ER system product range

REGO-FIX is the world's leading supplier of ER systems and probably has the most extensive programme, including all common taper, HSK taper, CAPTO and cylindrical tool holders. The perfectly calibrated ER system covers the entire clamping range from 0.2 to 34 mm. Their clamping nuts range from the standard version and the "sealed" type for internal coolant supply, as glide bearing nut for higher clamping forces to the mini-version.

In line with the motto "Meeting the highest expectations!" All components of ER clamping systems meet the ISO certified production standards of REGO-FIX for high-speed-machining. Additional balancing rings enable high-precision balancing up to 80,000 rpm.







Henning Neumann, Sales Manager, Europe at REGO-FIX AG comments: «This universal system combines decades of experience with permanent innovations. It is a guarantee of the highest quality, reliability and best machining results.»

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### The trendsetting powRgrip® system

No tool holding system can cover all applications. For applications in «League One» of machining - High Speed Cutting (HSC) and High Performance Cutting (HPC) – REGO-FIX developed the powRgrip® tool holding system with optimum performance and precision in concentricity precision, balancing, clamping

force, rigidity and vibration damping. The powRgrip® system's huge holding force, forces the workpiece to go exactly where it should go even at large rotational speeds.



Stefan Weber, head of machinery materials at REGO-FIX says: «The powRgrip® systems precision is the decisive factor for an excellent surface finish with optimum infeed. This leads to improved productivity. This, alongside its simple handling, makes the powRgrip® unbeatable.» In fact, by virtue of its user-friendly PGU (automatic) and/or PGC (manual) clamping units, powRgrip® needs less than ten seconds for tool clamping.

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ER system and powRgrip® system for every machine and operation.



Every day, motivated and well-trained REGO-FIX employees stand for "Swiss Quality".

#### For all occasions

REGO-FIX produces the full range of tool holders for every machine and every machining need, including HSK (DIN 69893), TC (DIN 69871), BT (MAS 403), CAT (ANSI B5.50), CAPTO (ISO 26623) and cylindrical holders. The ER system for universal applications and the powRgrip® system (PG) deliver solutions for demanding, high-precision and high-speed work.

Also available is the Weldon-system (WD) for heavy milling work, KBF drill chucks, MK Morse taper shanks collet systems (MK), MK Morse taper holders, combination adaptors, adjustable adaptors and floating holders, including the full accessory range for balancing operations.

#### Extensive product range for the bar turning sector

The cylindrical tool holders from REGO-FIX are designed for automatic turning machines and the extensions and available in different versions. Available in the ER mini-version for minimal space requirements, as double holders specially designed for automatic turning machines and as screwing chucks with and without length compensation the system accommodates a variety of needs.

Combined with the chuck range from REGO-FIX, these different versions offer the right solution for every application. Standard and ultra-precision machining with micro-drilling from Ø 0.2 mm and tapping collets with or without length compensation are also available.

Also specially designed for the bar turning sector are the extensively proven mini floating holders and collet reductions. The universal sealing disk system was

extended in 2008 with the new coolant flush disks and it provides optimum internal or peripheral cooling.

REGO-FIX products comply with the most up-to-date quality assurance standards enabling component traceability each and every time.

#### REGO-FIX AG AT A GLANCE

Obermattweg 60, 4456 Tenniken, Switzerland.

Company Director: Peter Tester.

Employees: 190 worldwide.

Products: Tool holder systems for the watch, automotive, aerospace, medical and electronics sectors.

Sales markets: Europe, USA and Asia with sales in over 38 countries.

ISO: 14001 certified.

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#### Further information:

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## STILL MORE OPTIMISING OF COMPONENTS FOR MAGNETIC VALVES

After years of optimising components for magnetic valves Anders Rousing, production technician at Danfoss, did not think that they could be much more optimised. But a new Tornos MULTIDECO 20/6 with six spindles has reduced the production time with further 50%.



Anders Rousing, production technician at Danfoss, and Brian Olsen, sales manager at Ehn & Land AB, agent for Tornos in Denmark, in front of the new Tornos MULTIDECO.



### Optimising

Anders Rousing from Danfoss Kolding A/S has joined the production of Danfoss magnet valves for many years. There has been a systematic optimising of the components going on during all these years and Anders Rousing has kept statistics of these optimising steps.



From 1980 and until today the production times for armatures to the magnet valves been cut down from 100 seconds to about nine seconds today, Anders Rousing says. 1980 the processing time for one component 3-4 weeks and the machining time as I said before 100 seconds, spread on six operations.

Today the machining time of the same component is nine second and the processing time 1-2 days. At the same time we have gone from the six operations to just two operations today. As all the others we are under hard pressure in our production as a result of the competition from the low cost countries and that has also conduced to the fact that we systematically have worked hard with the optimising of our components. The total cost for one component is about 55 % less compared with 1997, which was the year when the interest in optimising of the components really started. Therefore index was set to 100 at that point of time.

#### **Few seconds can be seen on the batch line**

Irrespective of the time price for the machine a small reduction of the machining time or the material consumption give a high profit on the batch line with our production of 3-4 millions per year, Anders Rousing says. The fact is that it is not only the machining time that has been in focus.

- No, in a co-operation with Iscar we have thought of reducing the waste of material by machining with other tools.

We have for example left the method to cut off with cutting-off tools with 2 mm width and use cutting-off tools with 2.0 and 1.5 mm width.

Furthermore, the new Tornos MULTIDECO is also a material saver, as the bar can be used almost all the way, as the machine does not need much material to clamp the bar. This means that the Tornos machine has contributed to yet another saving of the material consumption.

#### **The smith method**

- We do a lot to facilitate the handling of the components and automate the processes where it is possible. In Tornos automatic bar lath MULTIDECO all the components are picked up by a manipulator arm, which takes the component to the sub spindle, and leave it to a six axes robot. The robot thereafter put the component in a fixture ready for further pre-machining, which is time saving and quality improving for the next process.
- Another thing we work with is the smith-method, when our resetting times shall be optimised. We have here started to film a set-up. When the set-up is ready we look at the video, analyse all the activities and group them in external and internal activities.
- The purpose is to have all external activities prepared before the machine is stopped and the set-up begins. The video is a good base both for choosing the most economic set-up method but often also for getting ideas of other holders, auxiliary tools or other time saving elements, Anders Rousing explains.
- The machine shall produce as much as possible and therefore the tools to the machines are selected after useful life and sped but with less focus on the price for the tool.
- If we have to stop often to change tools the cost saving is quickly eaten up by stops in the production.



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