DECO MAGAZINE

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4/99
DECEMBER

IS TECHNICAL KNOW-HOW ALWAYS SUFFICIENT ?

DECO MAGAZINE

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IMPRESSUM
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Although I am no longer the youngest, I am, despite everything, a youngster at TB, since I've only been working here for 5 years. However, I have never seen a company develop so quickly. The transition from our conventional ENC family of machines to the DECO 2000 should be entered in the Guiness Book of Records as should also the complete renewal of all our machinery and the site here at Moutier.

Being in charge of "Zone 2" sales, which include Scandinavia, eastern Europe, the Netherlands, India, Africa and Israel, amongst others, I can say that I really love my job.

Of these different markets, our most notable sales achievements were in Scandinavia. The small parts turning industry is quite prevalent there, especially in the car, telephone, electronics, "door locks" and medical sectors.

Our ENC family of machines had already been well received, but it was the DECO 2000 concept which really upset the applecart. We can now count a large number of clients that are overwhelmed by the new machining facilities on offer, enabling them to produce certain parts impossible to machine on less complex machine without a counter spindle.

A lot of our clients, who, I'm proud to add, have become as good as my friends, have adopted a new mentality because of the rejuvination of their staff. This is, of course, a benefit and asset made possible by the DECO concept and its TB-DECO software operating in Microsoft Windows, which is very attractive for the youngsters.

I can also count on the excellent agents who are fully au-fait with our products. They also provide after-sales services to the great satisfaction of our clients.

Very close co-operation and associations have been established between clients, agents and TORNOS-BECHLER.

We frequently meet – not in front of a machine or to talk about it, but in a hockey or football stadium, or we go on a small excursion or, as in Sweden, we meet at the golf course, especially for our now traditional TB Golf Open. The majority of our golf-playing clients turn up once a year to this event to enjoy an unforgettable day.

Eastern Europe on the other hand, has not experienced the same strides. Unfortunately, the political change did not produce what many were hoping for. Traditional countries such as the Czech Republic, Slovenia, Hungary and Poland make good use of their experience to expand their markets quickly by exporting their products. This naturally led other companies in western Europe and the USA to invest, thus creating a snowball effect.

We will have to be patient a little longer, before the other countries, especially the ex-USSR states, reach this level.

The efforts in introducing our DECO machines in Israel were crowned with success and we are now intensively working on the Indian and South African markets.

Bernard Caspard
Sales Manager

Updating old DECO 10 programs:

Description: ***To benefit from the latest improvements to the DECO 10, we would recommend updating all programs written on a pre-TB-DECO 4.3 version.***

- In fact, improvements have been carried out with regard to both machine operation safety and programming as and when the new TB-DECO versions have been introduced.
- It is therefore necessary to update the oldest programs, which are now out-of-date.

Steps to be taken: ***To update a program, it is sufficient to:***

1. Create a new part based on the part specimen found in the latest TB-DECO version.
2. Open the part being updated.
3. Recopy all the main program operations to the new part. Do this by copying and pasting all the operations of said program. Those operations marked with an Assistant TB icon (fig. 1) must not be copied, because the optimisations were carried out in this type of operation.
4. Re-create all the synchronizations between operations.
5. Recopy the overall variable values and tool catalogue.

Fig. 1

Tip: ***Avoid using an already existing part executed with a pre-TB-DECO version installed in the computer, as a starting base for producing a new part. When creating a new part, it is always preferable to take a basic model or part executed from a recent model.***

Examples of improvements made to the DECO 10 models

	Description	From version
1	Checking axes references in the INIT.PGM program	4.2
2	Security driver and cutter brake	4.3
3	Addition of an extra operation line in the models for G915/G916 programming	4.3
4	Translation of all basic model operation descriptions (in 5 languages)	4.32

Comment: ***– points 1 and 2 relate to an improvement in machine operation safety (important!)***
– points 3 and 4 provide additional convenience during programming.

A major innovation

for this edition, which for the first time highlights a special tip for the MULTIDECO!

Since the appearance of the MULTIDECO, the power of the DECO 2000 concept has also been available to users of multispindle lathes. Given the vast potential of the latter, numerous optimisation facilities and operations, impossible to execute using conventional technology, are now within the grasp of the multispindle world.

Our test centre has vast experience, especially in the form of tips, which it will be pleased to pass on in the coming editions of DECO-Magazine.

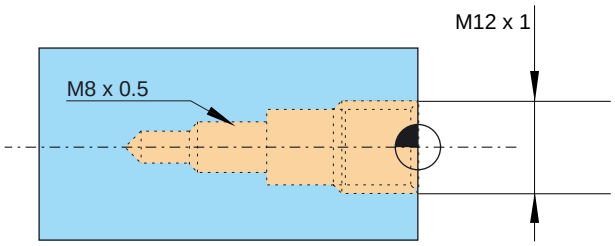
Simultaneous tapping on the MultiDECO:

Here is an example of 2 simultaneous tapping operations on stations 4 and 5, with compensation head.

Aim:

To tap a part using an M12 x 1 tapping unit on station 4 and an M8 x 0.5 tapping unit on station 5 simultaneously.

Diagram:

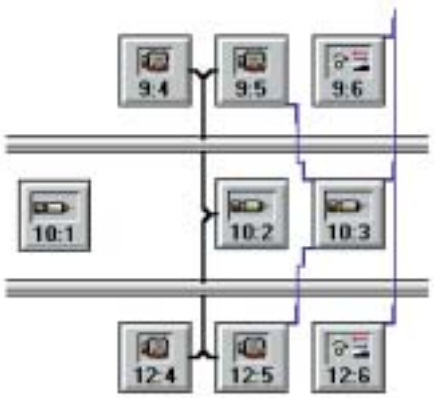


1. Create an operating line to program the tapping speed (spindle S3). This operating line is found between the line of station 4 and 5. Insert operations 10:1 to 10:3.

2.

- Insert start of operation 9:5 synchronisation with start of operation 10:2, and an end of operation 9:5 constraint with the start of operation 10:3
- Insert a start of operation 12:5 synchronisation with start of operation 10:2, and an end of operation 12:5 constraint with start of operation 10:3

Tip:



3. Insert an end of operation 9:4 synchronisation (tapping, station 4) with the start of operation 10:2 (reversal S3), end of operation 12:4 (tapping, station 5) with start of operation 10:2.

With this particular synchronisation, the shortest operation starts working a little later, in such a way that the two operations (9:4 and 12:4) finish at the same time, before reversing the S3 motor. Operations 9:5 and 12:5 execute untapping.

In the opposite case (without this synchronisation), the quicker tapping operation will wait for the other, which would lead to tap breakage or non compliance with the depth.

4. Programming operations according to the part drawing and the required tapping speed.

Comments:

The required tapping speed will be the same for stations 4 and 5. Therefore, define a mean tapping speed between taps M12 and M8.

S.O.M.

«Perfection in turning»

In 1958, Mr. Italo Reboldi, created S.O.M. de Reboldi Italo & Co. Snc in Valtrompia, a region comprising seven valleys, where mechanical engineering and metal production is an integral way of life.

Who is S.O.M. ?

S.O.M. has a workforce of 16 employees, 10 working in the plant and 6 engineers. It specialises in the production of precision parts and components for the hydraulic, electronic and car industries. A large amount of its production is exported to Germany, Belgium and France.

At the outset, the company's activities were geared towards tool production, general mechanical work and sub-contracted assembly. From 1965 to 1984, owing to its investments in hydraulic and cam-operated machinery, the company specialised in producing small to medium series mechanical parts for the commercial vehicle sector, thus becoming one of the main suppliers of Fiat O.M. in Brescia.

Over a number of years, market trends led **S.O.M.** to purchase high-tech NC machines with 2, 4, 7 and 8 axes.

Because of targeted investments, the company changed from a small-scale production shop to a full-scale industrial unit with clearly defined skills and responsibilities, from the ordering stage until final product delivery.

In March 1997, **S.O.M.** was awarded its ISO 9002 certification from the "Norske Veritas" office .

The increasing involvement of the founder's sons, Messrs. Ing. Dario Reboldi and P.I. Enzo Reboldi, consolidated the success of this dynamic company thus guaranteeing its future.

The average age of the staff is less than 30 years and the professional experience of the older members, coupled with the dynamic nature of the youngest staff, provide the proper balance for both the company and its employees to grow.

The managers ensure that their staff attend several on-going professional training courses. This is highly appreciated by the staff

thereby drastically reducing the risk of losing their resources to the competition.

Activities and products

The organisation's versatility, coupled with a constant appraisal of market trends, allowed **S.O.M.** to address several different sectors of activity and respond to the most varied requirements of its clients. Owing to its investment in high-performance and precision machinery, the company is now in a position to machine all kinds of materials, so as to produce any part with a diameter ranging from 4 to 65 mm. This applies to both simple and complex parts, in series runs from 1000 to 100,000 units. Renewing its fleet of machine tools meant that the company can guarantee the tight tolerances specified by the market.

The latest of these renewals was the purchase of the DECO 20 and we are pleased to think that with our automatic DECO 2000 line of automatic lathes, we made a contribution to helping the **S.O.M.** company achieve its marked success in both the Italian and overseas markets.

What made **S.O.M.** opt for TORNOS-BECHLER and its DECO 2000?

Without hesitation Messrs. Reboldi replied:

- Facility of machining the most complex parts, without reworking.
- Reduced production time compared with the conventional CNC machines offered by the competition.

- Flexibility of software use.
- Possibility of optimising and simulating programs off the machine, in masked time.
- Management and saving programs, data and part parameters in Windows.

As confirmed by the prestigious "Lombardie prize" for quality, awarded to **S.O.M.** in 1998 by the "Regione e L'Unioncamere", the aim of "total customer satisfaction" was achieved.

TORNOS TECHNOLOGIES ITALIA is proud to include, amongst its clients, such companies as **S.O.M.**, which are constantly striving to enhance the quality and efficiency of their production. We firmly believe that co-operation between **TORNOS-BECHLER** and **S.O.M.** will, in the future, lead to even greater satisfaction by both parties, firstly by raising the value of professional capacity – a typically Italian concept – and secondly, by the certainty of offering high-performance facilities, incorporating the latest technology.

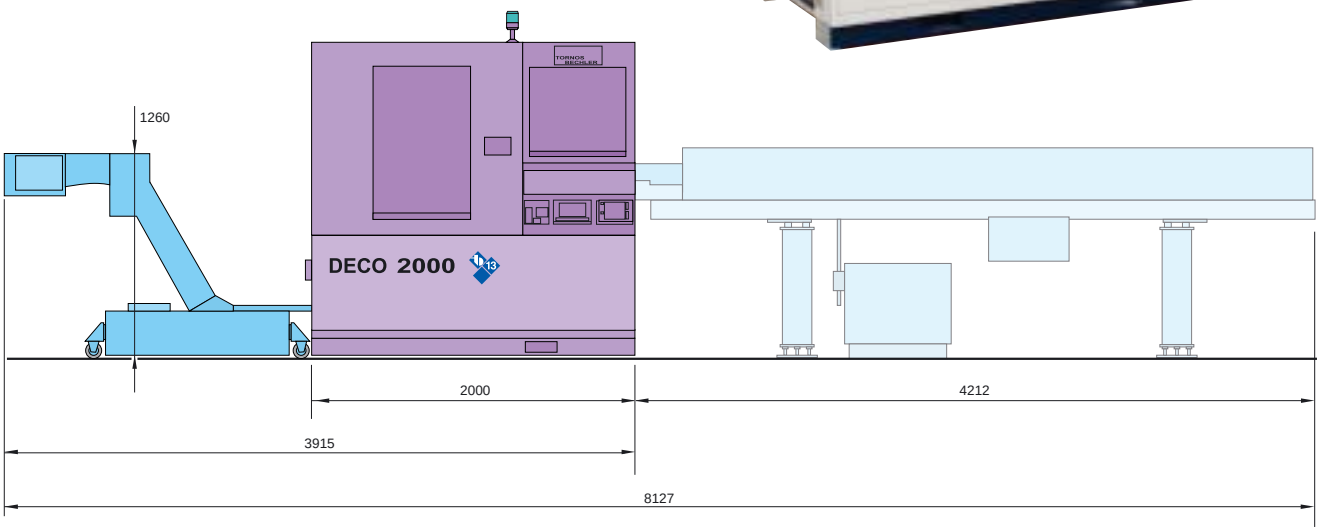
Enzo PITTON
Business Manager

New options

The range of options, equipment and accessories available for the DECO 2000 machines is constantly growing. In the last edition of 1999, you will discover two new features for the DECO 2000, 13 mm capacity.

Option 5420

Small chip swan-neck scraper conveyor



Application

The conveyor replaces the standard machine oil tank and consequently the cutting oil is stored away from the machine, thereby improving thermal stability.

The conveyor evacuates the chips from the machine, directly into a collector tank.

This principle avoids the problems associated with clogging the strainer and associated risks (especially overflowing oil).

As the chips are continuously (or intermittently) evacuated, this prevents delays owing to draining, decantation etc., thus considerably reducing chip handling.

This new production unit is highly autonomous and requires little supervision.

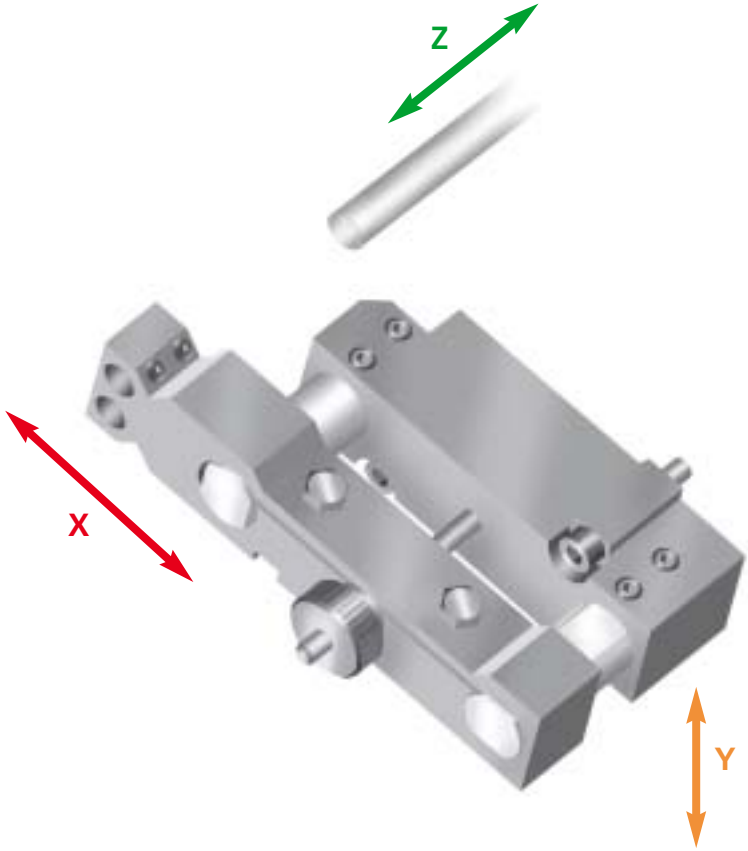
The Sermeto conveyor is controlled by the DECO 2000 PNC. It is fully integrated and guaranteed by TORNOS-BECHLER.

Technical properties:

Discharge height:	*1000 mm*
Belt speed:	*1.3 m/min.*
Belt speed:	*1.3 m/min.*

Option 1120

2-position curved tool holder for end-working parts

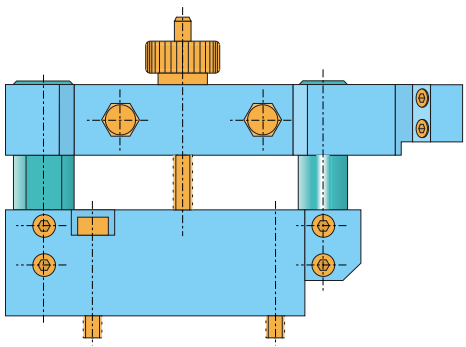


Application

This tool holder increases the possible operations which can be carried out at the ends of the part, such as the complex tasks of centering, drilling, threading, broaching and deburring. This tool holder complements the spindles of the combined unit and can be used for all operations.

With respect to internal turning or thread chasing operations, the small amount of travel and overhang (compared with the spindle of the combined unit) guarantee exceptional precision!

The adjustment facility means that setting the tool length and part to be executed can be finely adjusted.



Technical properties:

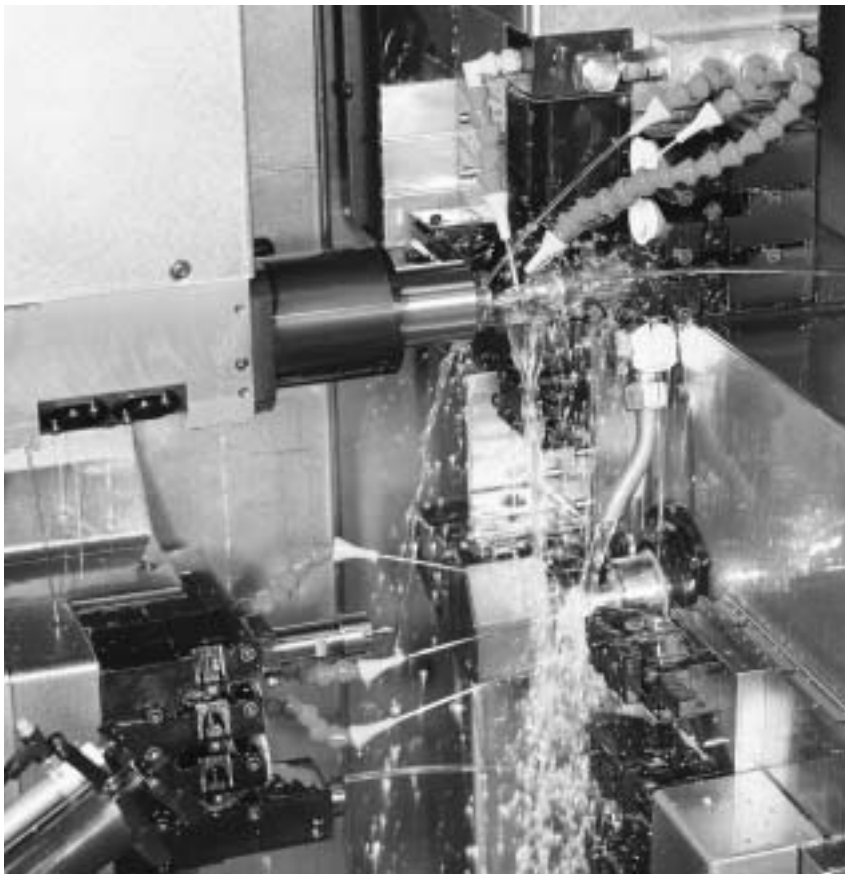
Boring diameter:	*2 x 10 H6*
Mandrel holder travel:	*18 mm*
Assembly position:	*T12 to T14 and T22 to T24 to operate the 2 bores* *T11, T15 and T21, T25, one tool only can be used*

Comments: This tool holder is also available for the DECO 2000, 20 mm capacity.

Is technical know-how always sufficient?

Investing in an automatic lathe usually represents a major financial and engineering project for most companies. It may also represent a strategically important decision for the company if the acquisition of this equipment provides the company with a stronger engineering capability or financial basis than it had prior to the purchase.

This decision could affect their overall competitive position both with existing customers as well as their efforts to develop new customers. Most engineers would agree that the same part can be manufactured using various methods and types of equipment, and it is usually the company that finds a better way of making the part that wins the contract. The question is however, are there other considerations other than technical know-how, which should be considered in determining the "better way of making the part"?



This article, which is the first in a series of several articles, will focus on large series manufacturing runs where the universal characteristics and setting up of the parameters of the DECO will not be considered. Instead, this article will attempt to provide you with a framework of other non-technical considerations, which should also be factored into the evaluation of determining the "better way of making the part".

For the purpose of this article, it is suggested that the "Best Method" of manufacturing the part is defined as that method, which provides the manufacturer with the greatest overall economic benefit, while maintaining strict adherence to both the engineering and delivery timetables established by the customer. This definition allows for a broader consideration than merely considering the cost of the equipment necessary to produce the parts. We have not included specific attention to the DECO's versatility and flexibility, but instead a focus on the following three factors:

- The total cost of the investment
- Productivity
- The number of parts to be produced.

Assumed working basis

In an attempt to provide accurate, non-bias information we shall present the parameters of four different machines, without identifying the specifics of any of the machines. For the basis of this comparison it is assumed that each of these machines is capable of producing the same part without the need for secondary or additional equipment, and the cycle times provided are the best estimate of the manufacturer's expected cycle time necessary to produce an acceptable part. The ability to run certain "special" parts on certain machines was not considered in this evaluation, nor the increased or reduced capabilities of any of the four machines. For the purpose of this comparison it is assumed that any of the four machines can produce an acceptable part, and therefore, the only consideration is the economic impact to the manufac-

turer of producing the same part on several different manufacturing platforms. The cost of acquisition of one of each of these four machines is as follows:

A: 200	**B: 175**
C: 150	**D: 80**

As a basis of comparison, all of these machines are expected to be utilized 120 hours per week with an efficiency rate of 85 %.

The table 1 is a useful means of breaking down the cost of the various machines to a common denominator, that being the "Cost per Part". This chart clearly illustrates that a machine with the lowest initial cost may not provide the manufacturer with the greatest economic benefit, while at the same time, in certain situations a less expensive machine, with fewer capabilities may be an acceptable alternative.

This table does not consider the possibilities of producing one part vs. another part, but simply reducing the production of the same part to various production platforms. As a result of the improved cycle time, machine "A" provides greater economic benefit than machines "B" & "C", and to this point in the evaluation less economic benefit than machine "D", however, there are additional factors which must be considered in evaluating the total economic benefit derived from the alternative selected.

There are a number of other factors, which should also be considered in determining the total cost and economic benefits associated with any equipment purchasing decision. These include labor cost, employee benefits (if additional manpower is needed), repair cost per machine, maintenance cost per machine, tooling cost per machine, facility cost (per square foot utilized), insurance cost and others. However, for the purpose of this comparison we have only considered the cost associated with the labor, repair and maintenance associated with the machines under consideration.

	A	B	C	D
Machine Investment	200,000	175,000	150,000	80,000
Difference in Initial Cost (%)	–	- 12,5 %	- 25 %	- 60 %
Cycle Time (in seconds)	28	38	47,50	50
Annual production (number of parts)	1,850,000			
Weekly production hours	120			
Rate of Lathe Efficiency	85 %			
Number of machines required	2,94	3,99	5,14	6,37
Number of machines purchased	3	4	6	7
Total cost of equipment purchased	600,000	700,000	750,000	560,000
Interest rate	9 %	9 %	9 %	9 %
Term of Loan in months	60	60	60	60
Monthly Payment	12,455,01	14,530,85	15,568,77	9,333,33
Cost per part	0,081	0,094	0,101	0,061
Difference compared w/ highest basic investment (%)	–	+ 16 %	+ 24,7 %	- 24 %

Table 1

Since our definition of the "Best Method" of manufacturing the part is defined as that method, which provides the manufacturer with the greatest overall economic benefit, it is necessary to consider the economic impact of at least three of these elements. **The table 2** reflects this effect:

The heading entitled "Labor per machine" is an estimate at 19.00, which is an average, since in most cases several machines can be controlled by a single operator.

By combining the information presented in the two previous charts it is easy to determine that although machine "D" appeared to be less expensive than machines "A", "B", and "C" after the initial comparison. In fact, this alternative turns out to be the least economically beneficial solution to our definition of the "Best Method" of manufacturing the part, and in fact, would negatively impact the manufacturer by over 2,075,899 over a five-year period of time. In this example, machine "A" represents the most beneficial platform to make the parts.

The figures contained in this article are from an actual case history. However, they are only presented, as examples are not intended to represent a commitment in any manner.

This article clearly demonstrates the interrelationship between both production and other economic and financial considerations necessary in effectively evaluating the purchasing decision. In future articles, we shall deal with the topic of "non productive time" and series capacities which are important issues to be considered in small series runs. These other considerations have an effect on the purchasing decision. Many manufacturers have attempted to bundle their products with other services, although these alternatives may be attractive, it makes it more difficult to effectively evaluate the economic benefits of their proposals.

	A	B	C	D
Labor/machine (@ 19./H)	1,641,600	2,188,800	2,736,000	3,830,400
Repair/machine/year (@ 4,500)	54,000	72,000	90,000	126,000
Maintenance/machine/year (120)	1,800	2,400	3,000	4,200
Total other Cost	1,697,400	2,263,200	2,829,000	3,960,600
Difference compared w/ highest basic investment (%)	–	+ 33 %	+ 66 %	+ 133 %

Table 2

The next article in this series, will focus on the influence of series capacity.

The author: Arthur Mandell, In charge of equipment financing for the last 27 years.

Degree in Economics and Finance.

Master of seminars to the Society of Manufacturing Engineers.

Senior Vice President of Diamond Lease (U.S.A.), Inc.

Crossing a new threshold!

If you have read previous editions of the DECO-Magazine, you will have doubtless discovered that things are moving very quickly at TORNOS-BECHLER.

Over the past three years, the "renewal" projects, certification to ISO 9001, the changeover to just-in-time production flow and the increase in the rate of production, coupled with new product developments etc., bear testimony to the fact that our company has been wholeheartedly committed to pursuing a policy of excellence.

This important step, which was particularly associated with the changeover to the year 2000, forced a complete reappraisal of the overall management of the company.

A large step for TORNOS-BECHLER

Since the 1st October 1999, all the operational processes of TORNOS-BECHLER SA in Moutier have been **SAP R/3** supported. This integrated management software package will ensure and optimise the flow of information at all levels and within all the sectors of the company. The heart of **SAP R/3** operation used at TORNOS-BECHLER comprises standard applications (modules) for planning, management and tracing the following processes: ***accounts (module FI and CO), production (PP), purchase and stocks management (MM), sales (SD), maintenance / SAV (SM) and human resources (HR).***

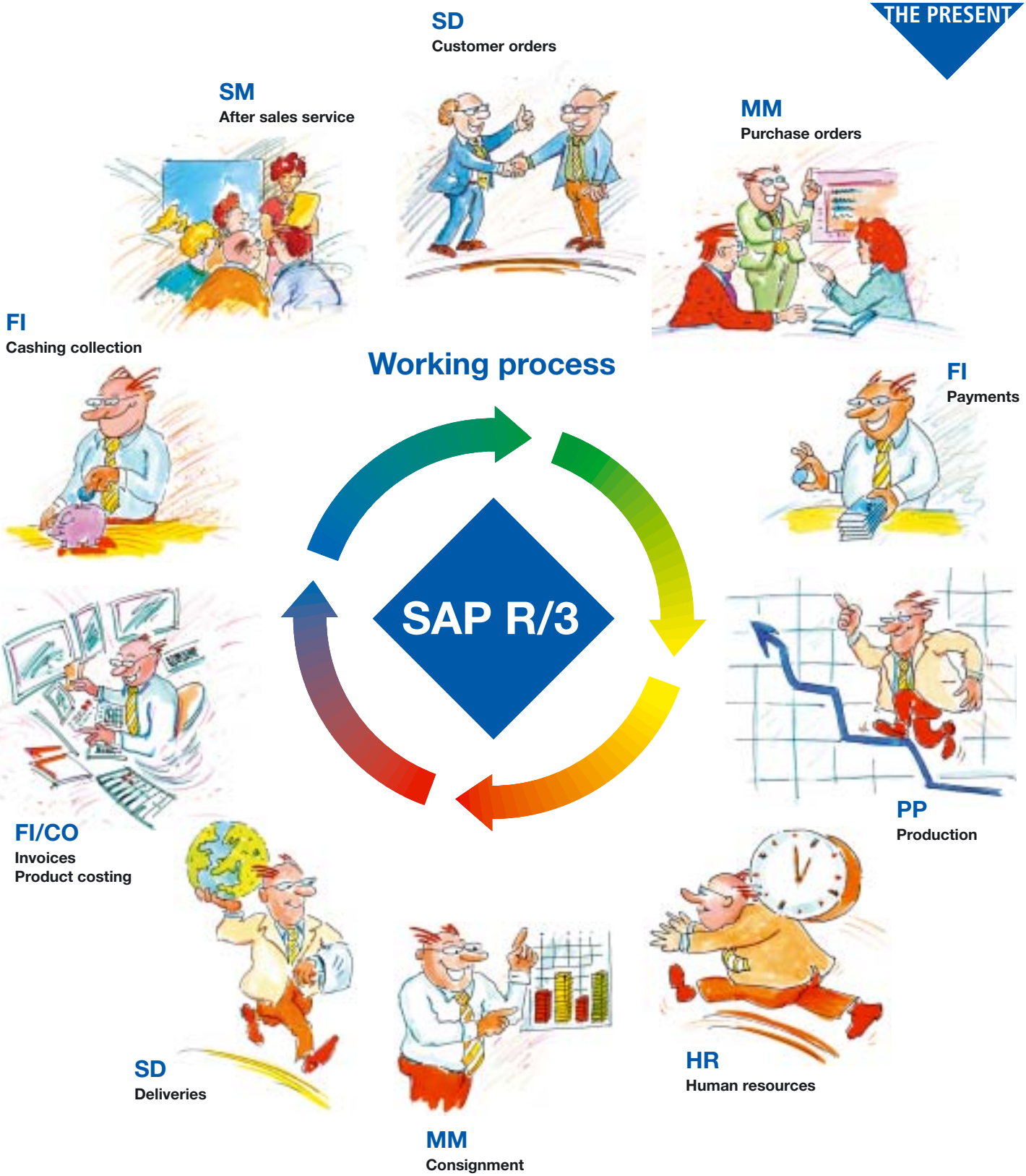
TORNOS-BECHLER now has the most efficient and evolutionary company management system, which is widely distributed throughout the world. The data is captured once only and managed in a single system, thus guaranteeing quality, relevance and the speed of data exchange. Each employee has the information and documents he needs at any given time available at his workstation.

The SAP R/3 operating cycle

An offer is input and managed by the **SAP R/3** and as soon as it is accepted and converted to a firm order, the system automatically generates all the assembly orders and specific equipment requirements relating to the client's product. Consumption along the assembly lines lead to Kanban call-ups, which generate purchase and production orders. The latter ensure just-in-time supplies in the correct quantity for the logistic flow. Purchases, production, assembly, commissioning and dispatching the machines, equipment and spares can be planned, managed and followed through in an optimum manner. All the goods-inwards receipts and production operations (including production and presence time) are retrieved by bar code or stamping, using an inductive badge incorporated in the **SAP R/3** system. Accounting operations, such as payments, invoicing and working out the cost price can be processed on the basis of reliable data, which are immediately available. The after-sales service, which includes managing the workloads of fitters and the background of after-sales operations, is likewise incorporated in the **SAP R/3** system. Finally, to conclude, the collation of information through the **SAP R/3** provides the facility of generating dynamic management reports, which are very useful decision-making and planning tools for all levels.

Setting up the SAP R/3

Setting up the **SAP R/3** took one year. The initial project phase, which was the most important and took the longest, was used to redefine and formalise all the organisational and operational processes of TORNOS-BECHLER. This definition, which was absolutely vital to identify data flow, was based on the documents of our quality system, which is ISO 9001 certified. The second phase consisted in parameterizing the **SAP R/3** system in relation to the processes defined. The third, and most complex phase, was importing the static data (articles, ranges, nomenclatures, …) and dynamic data (on-going, stock) from our old systems to the **SAP R/3**. This was then followed by final testing and staff training. The project had to cope with an additional degree of complexity in that whilst the **SAP R/3** was being set up, TORNOS-BECHLER was also changing its production philosophy, from high-volume upstream flow to just-in-time downstream production flow. Despite all these



new features, commissioning of the SAP R/3 took place under good conditions and "cruising speed" was soon achieved. The next stages will include system improvement and development, connecting the system to our subsidiaries, adding new modules and upgrading to the latest SAP R/3 version.

A vast number of changes have been made, thousands of transactions analysed, hundreds of thousands of data processing movements dissected and a lot of know-how transferred. After all, It is our aim to help ourselves and work more quickly and efficiently.

A permanent process of improvement, which is vital to any company striving for excellence, is now already up and running…

Patrick Spozio

Manager of Information and Management system (MIS)

TRADE FAIRS 2000

DECO 2000, year 2000, trade fairs 2000 ... 2000 good reasons to see TORNOS-BECHLER in the year 2000 !

This has already been tackled when announcing the trade fairs for 1998 and 1999 (we have already carried out this exercise three times in DECO magazine). Exhibitions are an almost unavoidable medium in our field of activities.

The opportunity to face challenges and demands in a setting and atmosphere specially created by exhibitors and visitors.

For the year 2000, TORNOS-BECHLER has planned to be present at more than 50 events !

Whether we manage these stands directly or thru our agents, whether these are the large 300 m^2 stands or the small information stands of 12 m^2, our specialists will travel the five continents to allow you to discover our products and the latest solutions proposed by the company, in pleasant surroundings.

This year, new products, new developments, new equipment, new solutions, etc., all going by the same family name of DECO, will feature at numerous events...

As is the case every year, TORNOS-BECHLER will be present at all the large events and many of the smaller ones, and will also be arranging its own in-house exhibitions (mainly with their agents).

From January, you will have the chance of discovering the TB-DECO version 5.0 in action and then, throughout the year, our range should reach bursting point, offering you more and more demanding solutions adapted to your requirements.

The first source of information on any new features is our WEB site. Don't hesitate to go there regularly and consult the "News" page (www.tornos.ch/fr/news) which will give you information on all updates and news !

... A meeting in the world ... near your place !

Europe			
Germany	Hamburg	Nortec	January 25-29, 2000
Italy	Pordenone	Samumetal	February 10-14, 2000
Italy	Firenze	Open House	March 2000
Spain	Bilbao	Biemh	March 13-18, 2000
France	La Roche s/Foron	Simodec	March 14-18, 2000
Switzerland	Zurich	Intoolex	March 14-17, 2000
Germany	Munich	IHM	March 16-22, 2000
Italy	Brescia	M.U.A.P. Martini	March 25-28, 2000
France	Paris	M.O. 2000	March 27-31, 2000
Netherlands	Ultrecht	Techni-Show	April 4-8, 2000
Germany	Wehingen	Gewatec	April 7-8, 2000
Italy	Borgomanero	Open-House Tinto	April, 7-15, 2000
United-Kingdom	Birmingham	Mach	April 10-14, 2000
Italy	Padua	Venetomeccanica	April 13-16, 2000
Germany	Nuremberg	Fameta	May 9-13, 2000
Denmark	Fredericia	Metal 2000	May 9-13, 2000
Switzerland	Moutier	Siams	May 23-27, 2000
Austria	Vienna	Intertool	May 24-27, 2000
Poland	Poznan	Poznan	June 12-16, 2000
Germany	Dusseldorf	Metav	June 27 to July 1, 2000
Germany	Frankfurt	Techmed Franfurt	June 28-30, 2000
France	Besançon	Micronora	September 2000
France	Paris	Transfometal	September 2000
Germany	Stuttgart	AMB	September 12-16, 2000
Belgium	Brussels	Machinemo	September 19-22, 2000
France	Woincourt	Vimexpo	October 2000
Italy	Milan	Bimu	October 3-8, 2000
Sweden	Stockholm	Tekniska Massan	October 17-21, 2000
United-Kingdom	Glasgow	SME	Oct. 30 to Nov. 2, 2000
Greece	Athens	Index	November 2000
Portugal	Porto	Emaf	November 8-12, 2000
Spain	Barcelona	Maquitec	November 14-17, 2000
Italy	Como	Altecnologia	November 20-25, 2000
East Europe			
Russia	Moscow	Metallobrabotka	May 23-27, 2000
Croatia	Zagreb	Biam	June 2000
Turkey	Istanbul	Tatef	September 13-17, 2000
Czech Republic	BRNO	Imtex	September 18-22, 2000
Bulgaria	Plovdiv	Technische Bulgaria	September 25-30, 2000
America			
United States	Houston, TX	Houstex	January 25-27, 2000
United States	Charlotte, NC	South-Tec	Feb. 29 to March 2, 2000
Mexico	Monterrey	EXPO Manufactura	March 7-9, 2000
United States	Somerset, NJ	New Jersey Mach.Tool	March 14-15, 2000
United States	Los Angeles, CA	Westec	March 20-23, 2000
United States	springfield, MA	Eastec	May 23-25, 2000
Argentina	Buenos Aires	Emaqh	April 29 to May 5, 2000
United States	Portland, OR	Northwest Mach.Tool	June 14-15, 2000
United States	Chicago, IL	IMTS'2000	September 6-13, 2000
United States	El Paso, TX	El Paso Machine Tool	November 14-15, 2000
United States	Orlando, FL	Orlando Mach. Tool	January 16-18, 2001
United States	Chicago, IL	IMTS'2000	September 6-13, 2000
Australia			
Australia	Sydney	Austech	April 11-14, 2000
Asia			
Singapore	Singapore	Metalasia	March 21-25, 2000
China	Shanghai	China Die & Mould	May 8-12, 2000
Taiwan	Taipei	Taipei Automat	May 9-13, 2000
Korea	Seoul	Simtos Seoul 2000	June 14-19, 2000
Japan	Tokyo	Jimtof	Oct. 28 to Nov. 4, 2000
Thailand	Bangkok	Thai Metalex	November 2-5, 2000

This table contains the information based on schedules at the time of going to print. For the latest details, please consult our Web site, under the heading "Trade Fairs". (www.tornos.ch).

If you wish to meet a particular person, please do not hesitate to contact us to find out detailed information about who is involved from our commercial and technical departments.

MULTIDECO
Adapted solutions !

After one year of marketing the DECO 2000 concept in the multispindle field, we took stock of the MULTIDECO market situation.
This was done in three stages. In the first instance we re-examined the parameters to be taken into account and the actual market requirements by way of a study involving our customers, and secondly we looked at the precision of the machine, before finally drawing our conclusions on the relevance of the solution proposed.

Parameters to be taken into account and study.

The environmental trends in the multi-spindle market speak in favour of flexible and productive solutions, with three highly topical parameters representing: reduced batch quantities, tighter tolerance requirements and the need for specialist know-how.

These three elements are obviously linked to the total time the client actually requires to produce a given part (and hence a given quality). In other words, in addition to the time required per part, account must also be taken of the actual productive time of the lathe. This assumption was discussed in DECO Magazine No. 6 (3/98). Please consult this number if you wish to refresh your memory.

The MULTIDECO was developed, right from the outset, to meet these requirements. The extreme versatility provided by masked time programming, the facility of carrying out corrections without stopping the machine together with considerably increased precision, are all currently associated with the remarkable development in computing allowed by the latest TB-DECO version, thus further reinforcing the product's position in the market.

Training and job attraction are also important.

Study carried out with our customers

In order to establish any technical or information shortfalls, we launched an enquiry with a panel of MULTIDECO 26/6 users during the period February to May 1999.

The questions raised dealt with the following points:

Technical reliability, staff environment, purchase motivation and, in particular, possible improvements.

The results showed the following:

The main reasons for purchase were essentially attributed to flexibility and much reduced setting up times. The MULTIDECO has already proved itself from this aspect and the hybrid "camshaft - PNC" concept is a great success, fully responding to user expectations.

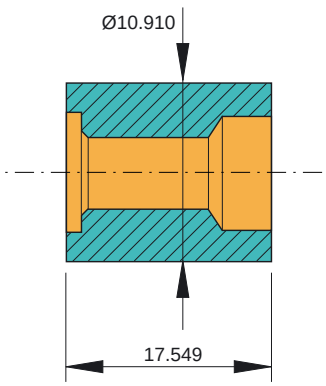
The training provided to the users and programmers was assessed as satisfactory to good. The concept of "knowing everything within a minimum amount of time" is very important. To meet this requirement, TORNOS-BECHLER is now working on a new training CD-ROM. The new TB-DECO (version 5.00) CD-ROM includes a lot of detailed training elements and examples.

The problems of reliability encountered during the initial marketing phases of the MULTIDECO 26/6 have been corrected by technical solutions, which have been tested during production by many clients, to their entire satisfaction.

Precision

In terms of precision, which is another very important requirement constantly undergoing change, the MULTIDECO is undeniably, very well placed. All precision-related parameters have been optimised.

The numeric barrel error compensation means that the 6 spindles can be adapted to the ultimate degree of accuracy. The vast feed possibilities avoid excessive strain on the spindles. The mineral cast iron base reduces the risks of precision deviation caused by vibration.



Summary of the technical properties of the two MULTIDECO machines currently available.

Properties	MULTIDECO 20/6	MULTIDECO 26/6
Bar diameter range	5-20 (22*) mm	8-26 (32*) mm
Part length	80 mm	100 mm
Part length without counter-operation	100 mm	120 mm
Spindle speed	6000 rpm	5000 rpm
Max. spindle power	11 kW	18 kW
Number of numeric axes	18	13-17
Max. cross slides	5	4

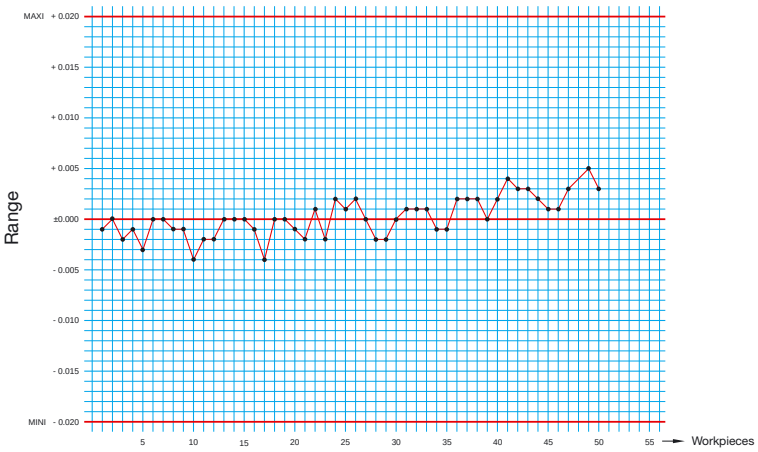
** with integrated bar feeder without bar end turning*

SPC control, let the figures speak for themselves!

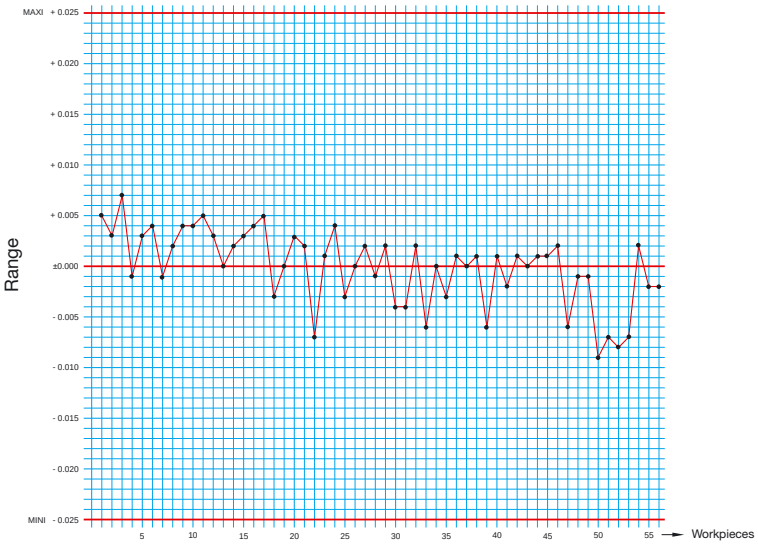
Condition of test:

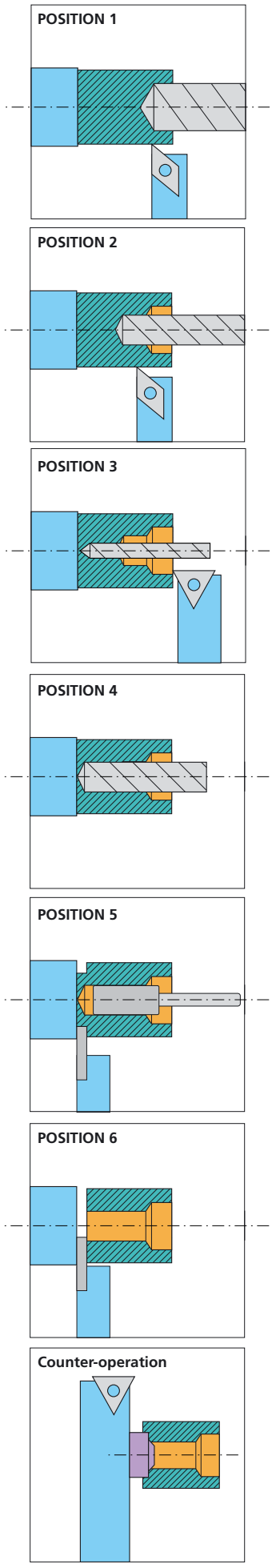
Machine with cooler and additional tank
Warming-up time: 30 min.
Production of 50 parts before measure
Productivity 11 parts/min.
Material: 100 Cr6 Ø 19

Feed Ø: tolerance ± 0,02



Length: tolerance ± 0,025





Conclusion

When first marketed, the MULTI-DECO suffered a slightly negative image owing to some concern about reliability. This is now a thing of the past and the solutions proposed by TORNOS-BECHLER have been fully tried and tested. All the strong points of the MULTIDECO relating to environmental trends and requirements of our representative panel of customers, can now be fully satisfied.

With the MULTIDECO, the very high rate of multi-spindle / cam productivity coupled with the extreme versatility of the PNC, is the ideal solution provided by TORNOS-BECHLER, allowing you to meet the challenges of an every changing market.

Do you have any questions or comments?

TORNOS-BECHLER SA will be pleased to welcome you at its premises and those of its subsidiaries, to provide you with further details.

Let us face the challenges of the future together!