

DECO MAGAZINE

14

3/00

SEPTEMBER



Usinage et
récupération
des pièces:
possibilités
accrues

Ausgaben-
zusammen-
fassung

An organisa-
tion, which
reacts faster

La comple-
mentarità:
lo scopo
ricercato !





IMPRESSUM DECO-MAGAZINE 3/00

Industrial magazine dedicated
to turned parts:

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An organisation, which

reacts faster

As the business unit has been running since March 2000, I would now like to take the opportunity to return to the transformation of the company and creation of business units.

*By Mr. Fernando Dal Zotto,
Manager of the TORNOS-BECHLER
single-spindle business unit and
deputy general manager.*



Running three main product lines, each of which perfectly complements the others in terms of market solutions, we decided to opt for a business units structure, thereby enabling us to react more quickly and concentrate our efforts on different product types, thus bringing us even closer to our clients.

In addition to these three business units, the central divisions serving the company as a whole, implemented a logistics system based on the «just-in-time» supply principle.

After running for a few months, the following positive points became evident:

- ◆ Flexible organisation.
- ◆ Faster product family adaptation.
- ◆ Company better market-oriented.
- ◆ Autonomous business units in line with entrepreneurial thinking.

In order to overcome any communication gaps between the business units, whether these are of a personnel, operational or strategic nature, we implemented a feedback system thereby creating complete transparency between the various units.

Up to now, our strategy has paid off, since we have launched new products in the single-spindle and multi-spindle business units and have also incorporated Schaublin as the third business unit.

The on-going reorganisation of our production plant, coupled with an investment of more than CHF 50 million over the last few years mean that production can now run 24 hours/day, 7 days a week.

In addition to these investments, we are also taking on more staff and improving our network of associates and sub-contractors.

Whilst undergoing constant development, the company must also

try to anticipate market demands. After the success of the DECO 13 b i, we are now preparing a strategic development of the range, intended to offer market players involved in single to fairly complex parts, an interesting alternative to current products with an unbeatable quality-to-performance-to-price ratio.

All these upheavals and the rate of incoming orders, which largely exceeded our expectations, certainly led to a couple of hitches in our structure.

The willingness and conviction of our partners, coupled with the understanding and back-up of our clients, mean that these passing hiccups will reinforce our relations further and enable the group to become even stronger and more competent in the market.

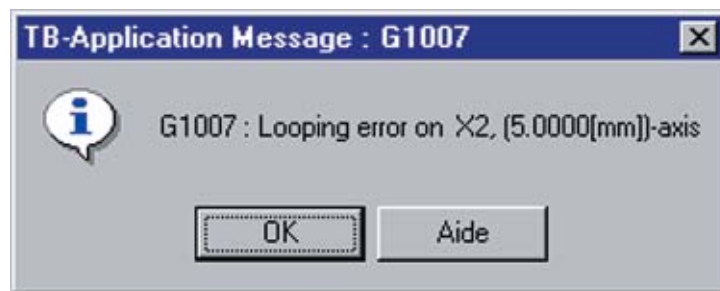
We would, of course, encourage you to let us know of your experiences, so that we can improve, thereby helping and supporting you in discovering and applying solutions adapted to your requirements.

Let us take up the challenges of the future together


F. Dal Zotto

How to overcome a looping error?

Description: *when interpreting a program on the TB-DECO, message G1007 may appear.*



Why a looping error?

The TB-DECO principle is based on the fact that all axes and spindles must be in the same state at a specific moment. At this point, the program has reached the end of the loop and has to start again at a new loop to implement another cycle.

A looping error occurs when an axis is not strictly in the same machine position at the start of loop G13 (green flag) as at the end of the loop G113 (red flag).

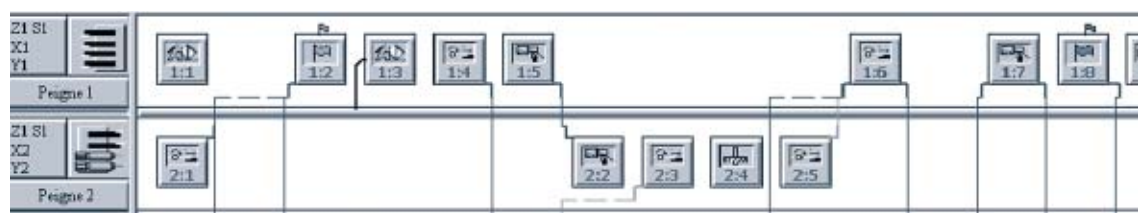
The same applies to the spindles, but here it is the programmed speed, which must be absolutely identical.

Without this looping control, an axis could increment its position by the error value at each program loop, thereby ultimately reaching the system limits (software limits).

Tip: *To overcome this problem and avoid looping errors, apply the following procedure.*

1. The moment the warning dialogue box appears, record the error value and name of the axis or spindle affected by the problem. In our example axis X2 has a 5-mm looping error. Then click OK.
2. In the operation line in which the axis in question is located, open the operation preceding G13 (green flag) and select the **Single Mode** box and validate. Do the same for the operation preceding G113 (red flag).

In this example, this affects operations 2 : 1 and 2 : 5



3. Then initiate program generation. As and when the « single mode » instructions you have just specified are found, TB-DECO opens a dialogue box. In our example, the following window appears for operation 2 : 1.

If the operation contains several ISO code lines, scroll through the code to the end, using the fast forward button

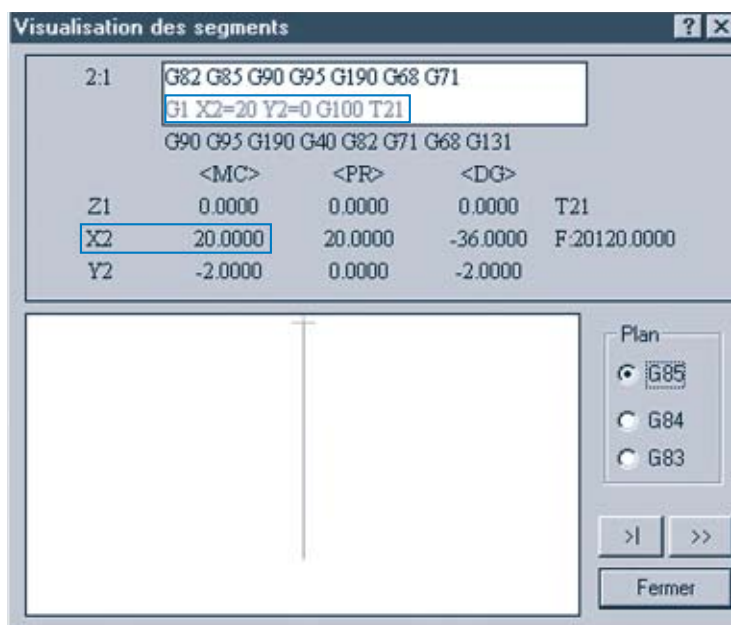


Now record the machine position of the axis in question together with the last code line. The machine position is found in column < MC >.

4. Shut the dialogue box. Programme generation continues and will again stop for the 2nd operation (2 : 5). Proceed in the same manner to record the information.

5. Compare the 2 < MC > machine positions of the axis in question. The looping error value in brackets, indicated by message G1007, must be found for this comparison. Also compare the 2 code lines.

6. Correct the ISO code of one of the 2 operations – usually that preceding the end of the loop (2 : 5) – so that the < MC > position is identical for both cases.



The most common looping errors are due to the following factors:

- ◆ The tool support called up at the start of the loop is not the same as at the end of the loop.
- ◆ The T geometry of the tool called up at the start of the loop is not the same as at the end of the loop. For example : a hobbing tool has 2 geometries in Z !
- ◆ The position programmed is not the same at the start of the loop as at the end – this is the case in our example.
- ◆ There is no synchronisation between the last operation (2 : 5 in the example) and the operation containing G113 (1 : 8). In this case, the said operation is in danger of running over the end of the loop.

This tip is also available if you consult and print out the information from our web site at the following address :

http://www.tornos.ch/eng/TB-DECO/default.taf?page=astuces_Submenu.html

Since the above tip is not, strictly speaking, a specific programming tip but rather a general aid to overcome a temporary problem, we cannot provide the facility of loading the program directly from our site.

In the next
DECO-
Magazine:

How to
overcome
a looping
error
on a
spindle.

Part machining and recovery:

Increased potential

All the DECO 2000 machine models undergo continuous development both with regard to design possibilities and suitability for certain requirements.

This section covers some of the latest features recently proposed. Are you perhaps looking for a device for a specific application ? It may already be available – do not hesitate to contact our specialists for further information.

Option 5270

Conveyor belt

Application

As an alternative to the part recovery trough, a « conveyor belt » may also be used as an option. This comprises several elements, including an aluminium structure, a polyurethane belt, an oil recovery trough and a reception bench, which can be inclined and is height adjustable. This solution makes it possible to recover large quantities of parts outside the machine most efficiently. An anti-blocking safety system ensures continuous, fail-safe operation.

Comments

The bench cannot be used with a swarf conveyor.

Compatibility

DECO 2000, capacity 13 mm.



Technical properties

Translation speed :	1.8 m/min
Geared motor :	24 volts a.c.
Electrical supply :	220/380 V a.c. single phase
Outlet :	24 volts three-phase, dephased
Bench dimensions :	400 x 400 mm
Belt length :	Available in more than 10 versions from 450 to 3000 mm
Assembly :	Ex-works

Option 5255

Lubrication distribution group

Application

Until now, the use of bore bits with oil holes for drilling, with coolant spraying from the centre, was only possible in one position only. However, depending on the operations to be executed, some technological compromises had to be made. With this new option, it is now possible to work in three positions independently and alternatively, thereby optimising the work using this particular type of tooling (for example, half the work by way of operation and the other half by way of counter-operation) and increasing machining facilities (for example, 2 tools for the same hole).

Comments

This device requires option 5250, the 20 bar pump.

Compatibility

DECO 2000, capacity 20 and 26 mm.

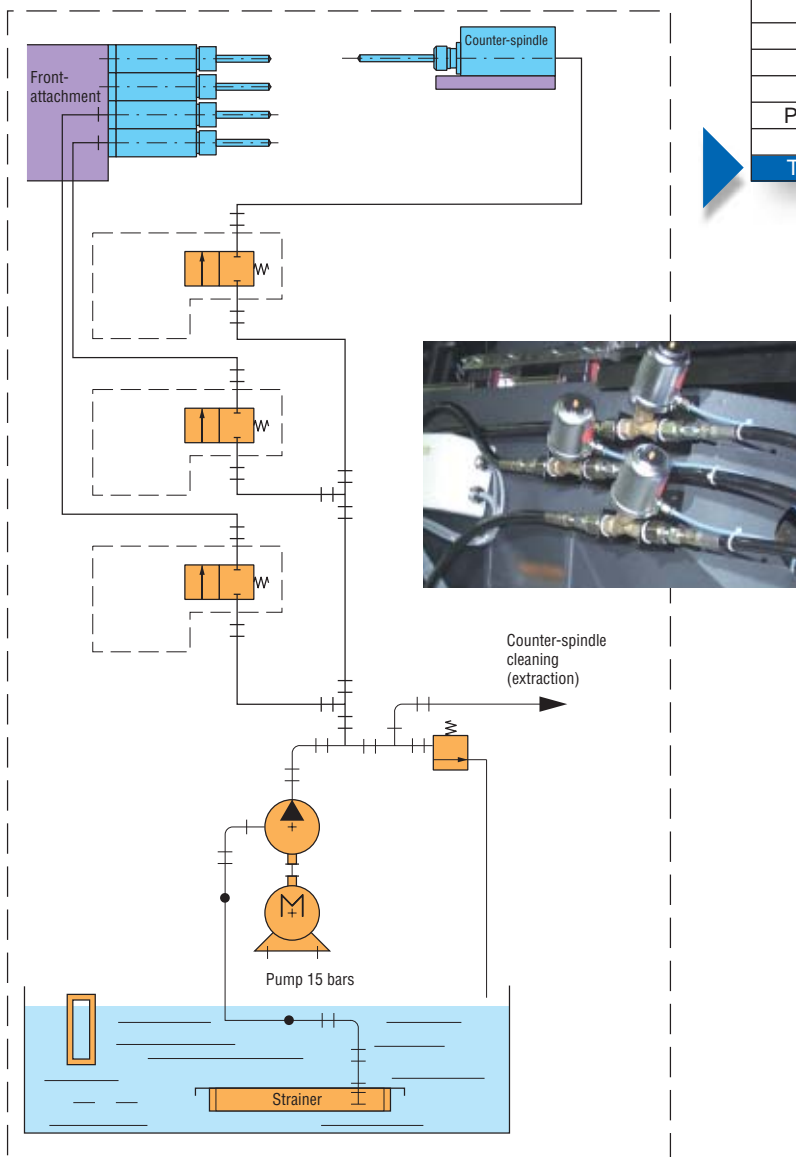
Technical properties

Type of control:

M function

Assembly:

Fully adaptable



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Option 5270

KELVIN oil cooling device

Application

The KELVIN oil cooling device is a must for all those demanding applications where the cutting oil temperature tends to fluctuate. Fitted with an electronic temperature monitoring system, it ensures the necessary thermal stability during ultra-precision work. Access to all components is very easy.

Compatibility

DECO 2000, capacity 20 and 26 mm.

Technical properties

Electrical supply :	400/460 V - 3-phase - 50/60 Hz
Cooling power :	2.5 kW
Oil outlet temperature :	20°
Max. oil flow :	10 l/min. at a max. of 10 bar
Dimensions :	960 x 485 x 650 mm
Hydraulic connection :	G3/4"
Assembly :	Fully adaptable



LEGHE LEGGERE LAVORATE:

DECO 2000, a reliable partner in the real world of continual development...

The company came into existence in 1951 in Milan as an engineering shop for precision work. It was only in 1980 that the company finally ended up in the specific small-parts machining sector in Buccinasco, a small region near Milan, where it still has its registered office.

We met Mr. Ivo Pizzamiglio (company board director) and his two sons Davide, the older, who is in charge of the technical/commercial side and Matteo, who is in charge of management and quality.

Brief interview

Hello Mr. Ivo. Please could you briefly describe your company ?

Our company started to take shape about 20 years ago, when it decided to fit itself out so as to be competitive in the very difficult automatic small parts turning sector. Over the years investments were specifically targeted at machine tools with chip removal facilities, to meet high technological production requirements without having to resort to reworking or finishing operations.

The true innovation for us was the arrival of CNC machines in the market. As this was a new technology, we had to spend a certain amount of time finding the right balance between investment and production capacities, which led to a number of modifications during the course of our reorganisation programme.

I must point out that we were largely assisted by our major suppliers, and here I must name TORNOS-BECHLER, which has always provided us with the benefits of its experience and know-how,

whether from its headquarters in Switzerland or through its Italian subsidiary, by helping us overcome our problems.

It goes without saying that LEGHE LEGGERE LAVORATE has now been granted certification. With its own technical division, the company is constantly looking at ways of improving its productivity-to-quality ratio at a competitive price. The company is currently producing about 2,000,000 parts per month, which in the majority of cases, represent very high added value parts. I can now confirm with pride, that all the divisions of the company are in the hands of highly competent specialists. Based on this consideration, I am fully convinced that there is real growth potential for LEGHE LEGGERE LAVORATE.

Mr. Ivo, what production equipment is currently in use at LEGHE LEGGERE LAVORATE and what are your strong points ?

The fleet of machines at LEGHE LEGGERE LAVORATE currently comprises :

- ◆ 40 automatic TORNOS cam-operated lathes for working bars from 1 to 25 mm.
- ◆ 7 CNC TORNOS lathes for capacities of up to 26 mm (including 3 DECO 2000 which are the first of eight planned by the year 2002).

Our organisation is such that we can offer a range of services to meet all the requirements of our customers. We have the following facilities :

- ◆ 1 department containing reworking lathes, transfer machines, millers, drilling machines, tapping machines, honing machines and everything that is sometimes required to back-up the cam-operated machines.
- ◆ 1 parts rinsing department, fitted with closed circuit equipment and also.
- ◆ 1 ultrasonic rinsing department.
- ◆ Our stores handle the equipment destined for treatment, grinding or other operations, and also prepare and pack the goods ready for dispatch.
- ◆ A specific department deals with incoming raw materials and their storage.
- ◆ The labelling is based on order sequence, which is purely the responsibility of the head of production.

However, in my opinion, the main strengths of LEGHE LEGGERE LAVORATE include its metrology room, which monitors process control, final inspection and an inspection of the goods received.

This department, which is fitted with ultra-modern and sophisticated inspection facilities, has the lat-

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est, high-performance computer processing system, allowing our company the scope to guarantee its production to very high-level quality standards.

Secondly, the tooling department, which works closely with the engineering office, is involved in meeting all requirements originating from the production departments.

Mr. Pizzamiglio, what are the outlooks for LEGHE LEGGERE LAVORATE, especially in terms of technology ?

We have discussed this issue with my sons, who are responsible for growth behind our company. The reply was unequivocal – we must always direct our efforts into seeking out the most advanced technology, like the DECO 2000 for example, and be surrounded by highly valued and skilled colleagues. We must pursue our work with enthusiasm and be continually aware of any developments and technological opportunities offered by our associates, like TORNOS-BECHLER.

By sticking to these goals, we believe that the outlook for growth for our company is both very interesting and real.

Mr. Pizzamiglio, you talked about continuously seeking out advanced production technology. Could you perhaps explain your vision in a little more detail ?

Thankfully the machine-tools market can now provide a lot of information through trade fairs, exhibitions and even through technical-commercial contacts, to quote only those that immediately spring into mind.

We have been visiting the most important trade fairs throughout the world for years now, and having contact with the most important machine-tool manufacturers, this has provided us with the knowledge in real time, of the latest innovations in this particular sector.

It was precisely through one such opportunity that we were favourably impressed with the launch of the DECO 2000.

As far as we were concerned, this was an exceptional and truly innovative machine.

The arrival of these machines at our company (incidentally, we should point out that LEGHE LEGGERE LAVORATE is synonymous with « tailstock ») allowed us to exploit fully our programming facilities without any machine limits, thereby allowing us access to those activities which, these days, count amongst the most difficult because of their nature. This has been highly satisfactory.

Visit to the workshops

We then visited the plant with his sons, Davide and Matteo. We are now in the LEGHE LEGGERE LAVORATE production shops where everything is in its correct place. There is an impressive sense of order here.

Arranged along the line are the conventional CNCs, the DECOs and a large cam-operated machine area.

Mr. Davide explained that it was not always straightforward managing and dispatching work for such a vast fleet of machines.

In fact, optimising the production shop required input at all levels. Based on our knowledge of our own capacity, we tried to construct a technical-commercial structure, which would ensure that we provide an efficient service in those market sectors we feel are of interest to us.

At the same time, we have expanded and obviously reinforced our design office, which is now in a position to manage all space requirements within a couple of hours.

All production designs and studies are computerised and directly linked to the production and inspection departments.

At present, LEGHE LEGGERE LAVORATE is able to reply to an invitation to tender within 24 hours.

Mr. MATTEO, for a young man with management qualifications like you, what does the job as head of planning and quality at LEGHE LEGGERE LAVORATE mean ?

As I am able to put what I have learnt into practice, it is highly satisfying to apply and convert what are sometimes abstract theories into concrete practice. I have also attended various updating and refresher courses in different subjects. However, daily practice provides an excellent form of learning and reality represents the best form of schooling.

In our company, the secret of management – and this is something our father quite rightly insists upon – is a continual presence on the shop floor : if one is around, then most problems are usually solved within a very short space of time.

However, I must point out that as far as my work is concerned, I am assisted by those in charge of the various divisions, namely the head of production and head of goods acceptance, who provide a certain guarantee in what I do.

Casting a glance back over the department before leaving the company, we saw empty spaces currently being used to fit out electrical and pneumatic lines and ventilation systems. These are, of course, the areas earmarked to receive the new DECO 2000.

Everywhere in this very welcoming company, we find that a good vision, associated with a will of iron, is often the guarantee of success. We would like to extend our congratulations to LEGHE LEGGERE LAVORATE and our best wishes for their success.

Let us take up the challenges of the future together

A Summary

of the DECO-Magazine Editions

DECO-Magazine:

A source of comprehensive and practical information.

In recent editions, we have left out the summary tables that used to follow the option and how-to chapters.

However, you will be able to quickly retrieve any article of interest because we will be publishing once a year a table of all items appearing in the DECO-Mag.

Most of the editions are always available, if you need a specific copy. Do not hesitate to ask us for one or more.

All the displayed devices and attachments...

Table summarising the published options in DECO-Magazine

Option	Designation	DECO	Deco Mag n°
940	Spindle lock	20/26 mm	7
1120	2-position curved tool holder for end-working parts	13 mm	11
1650	Revolving spindle milling/slitting unit for circular ESX 25 chucks	20/26 mm	4
1800	Gear hobbing unit	20/26 mm	5
1900	High speed external thread miller	20/26 mm	8
1910	Milling head with tool centring system	20/26 mm	8
2100	High-frequency revolving spindle for drilling, milling and slitting operations, running at 15000rpm for light operations	20/26 mm	4
3240	Triple toolholder for end boring for commercial tooling	20/26 mm	4
3300	Long revolving drilling/milling spindle unit for ESX 25 chucks	20/26 mm	6
3350	Differential spindle	20/26 mm	6
3800	Internal thread miller, for counter-operation	10 mm	8
3810	Fixing system for the whirl cutter spindle	10 mm	8
4400	Internal thread miller, for operation	10 mm	8
4410	Fixing system for the whirl cutter spindle	10 mm	8
4550	Longitudinal S5 motor for driving the revolving units in positions T41-T44	20/26 mm	6
4900	Long parts extractor	10 mm	7
4900	Device for extracting, evacuating and recovering long parts	13 mm	12
4950	Pneumatic device for extracting and evacuating long parts with bar pusher	10 mm	10
5010	High pressure drilling device	20/26 mm	5
5255	Tool lubrication pump, 20 bars with additional tank	13 mm	12
5420	Small chip swan-neck scraper conveyor	13 mm	11
5430	Suction device for oil and emulsion mist	10 mm	7
5440	Electric cabinet air-conditioning unit, type "Mclean Slimboy"	10/20/26 mm	10
2420, 2430 2440, 2450	Cross drill for the MULTIDECO 26/6	26/6	12
4600	Tilting tool holder for counter-operation	20/26 mm	9
1680	Geared down tool holder to increase torque	20/26 mm	9
5270, 5275	Conveyor belt removal device	20/26 mm	9

All these options are equally available on Web Page:
http://www.tornos.ch/eng/products/prodFrame_options.html

The programming tricks at your service...

Table summarising the published tricks in DECO-Magazin

Tricks	DECO 20/26	DECO 10	DECO 13	DECO basic	Deco Mag n°
Integrated assistance	Standard	Standard	Standard	Standard	3
Quicker Programming	Standard	Standard	Standard	Standard	3
Tool offset concept	Standard	Standard	Standard	Standard	4
Cross tapping with a thread milling cutter on the T34 tool	Standard	No1500	Standard	Standard (T14)	5
To chamfer a cross hole with the tip of the bit using the C1 axis	N°0916	N°0916, 1500	N°0916	N°0916	6
Macro G903 (indexing)	Standard	Standard	Standard	Standard	7
Milling a square with T31 and end-milling.					
Transmit function	No0916, 0917	No0916, 0917	No0916, 0917	No0916, 0917	7
Milling a square with a circular miller mounted on the polygon unit. Transmit function	No0916, 0917, 1700	No0916, 0917, 1700	No0916, 0917, 1700	No0916, 0917, 1700	8
Macro G904 (constant cutting)	Standard	Standard	Standard	Standard	9
Increased long part machining	No4900, 2900	No4900, 2900	No4900, 2900	No4900, 2900	9
Producing parts made from thin-walled piping material	Standard	Standard	Standard	Standard	10
Updating old DECO10 programs	Standard	Standard	Standard	Standard	11
Simultaneous tapping on the MULTIDECO	Standard	Standard	Standard	Standard	11
New functionality of the G913: Chip deburring by interpolating axes Z and X	Standard	Standard	Standard	Standard	12
Extraction position on the MULTIDECO	Standard	Standard	Standard	Standard	12
Thread chasing by interpolating axes X3 and Z1	Standard	Standard	Standard	Standard (Z2)	13

The indicated numbers correspond to the required option for the presented tricks.

All these tricks are equally available on Web Page:

http://www.tornos.ch/eng/TB-DECO/default.taf?page=astuces_Submenu.html

These two summaries are not comprehensive enough to include the currently published information in Deco-Magazine. For the first time, we will publish a combination of all different kinds of published articles, news, presentations, leading articles...these are sorted in the above sections.

Presented customers, partners...

Table summarising the enterprise articles

Customer	Theme	Deco Mag n°
Lauener	The DECO 2000 concept	1
MGB	More complex machining operations and increased user's friendly system	3
Alphatool	The way to success	4
RM Precision	Making the switch boosts productivity	5
Gervasoni	Symbol of the future	6
Mul-T-Lock	Interview with David Ellenbogen and Izik Vaxman	8
Poggipolini	The DECO System is an advanced technology tool	9
Habegger	Skills shared	10
Kugel	The paths of perfection	10
S.O.M.	"Perfection in turning"	11
Motorex	A brief look back	12
Coulot	The DECO 2000 system serving the medical industry	12
Hugard	DECO 2000: a real alternative to cam-operated machines	12
Laubscher	The DECO 2000 concept is breaking with a 100 year-old tradition	13
S.O.M.	Companies which succeed guarantee quality	13

New concepts, new philosophies, etc...

Table summarising the concepted articles

Machine	Title	Deco Mag n°
DECO 2000	Training at your home base: the training CD-Rom	1
DECO 2000	A highly successful craftsman: TB DECO	5
Internet	Looking back on this new media	5
MULTI-DECO	"Hybrid" concept	5
MULTI-DECO	The machining time per part and the cost of the machines	6
Training	An important step	6
Small batch sizes	The DECO 2000 can be shown to be efficient and profitable even for small batch sizes	7
Production	A fundamental change	8
Environment	Standing still means taking a step backwards	9
Know-how	Is technical know-how always sufficient?	11
Technical	A philosophy geared towards simplicity	13

Technical...

Table summarising the technical articles

Machine	Theme	Deco Mag n°
DECO 2000	DECO 2000 surpasses the present (DECO 7)	1
DECO 2000	All versions	1
MULTI-DECO	EMO Hannover 1997: : MULTI-DECO 26/6	2
DECO 2000	Four additional trump cards in the range (DECO 10)	2
MULTI-DECO	MULTI-DECO 26/6 17 axis	3
The thread whirling process	In the hands of the surgeon	4
Platit by Blösch	Tools coating	5
MULTI-DECO	The different versions	8
TB-DECO 5,0	New version available	10
Presetting model	MULTI-DECO 26/6, new presetting solution	10
Robobar MSF 832/6	An integrated bar feeder for the MULTI-DECO 26/6	10
MULTI-DECO	Adapted solutions	11
MULTI-DECO	Optimum setting up and working	12
Motorex-Focus	Cooling emulsions and their maintenance	1

General articles, presentations, news...

Table summarising the general articles

Theme	Title	Deco Mag n°
Forum	Change is something which affects whole companies, not just products	2
Review	Success and affluence (Launch DECO 2000 cap. 20 mm)	2
Forum	The customer is in the heart of the company	3
Trade fairs	Trade fairs 1998	3
The present	"Renouveau de TORNOS-BECHLER"	4
News	Preview: DECO 2000 - 26mm capacity	5
News	The new ROBOBAR SSF 532	6
Forum	DECO 2000 20 mm capacity as shown in Japan	7
Forum	Quality document: policy and aims. ISO 9001 Certification	7
News	Doughty Hanson & Co acquires TORNOS-BECHLER S.A.	8
Trade fairs	Trade fairs 1999	8
News	EMO 99: DECO 2000 13mm cap., MULTI-DECO 20/6, TB-DECO 5.0	9
The present	SAP R/3	11
Trade fairs	Trade fairs 2000	11
News	DECO 13 basic i	12
News	MULTI-DECO 20/8: and three MULTI-DECO machines	12
News	SIAMS 2000: the meeting of microtechnologies	13
News	New layout for the DECO-Magazine	13

The above mentioned articles, were up-to-date when they were published. As our products rapidly evolve you can sometimes find that some items are a little obsolete. In the summary below we printed the listing of each edition with the issue dates.

DECO-MAG number 1 : May 97
 DECO-MAG number 2 : Sept. 97
 DECO-MAG number 3 : Dec 97
 DECO-MAG number 4 : Feb. 98
 DECO-MAG number 5 : May 98
 DECO-MAG number 6 : Sept. 98
 DECO-MAG number 7 : Dec. 98

DECO-MAG number 8 : Feb. 99
 DECO-MAG number 9 : May 99
 DECO-MAG number 10 : Sept. 99
 DECO-MAG number 11 : Dec. 99
 DECO-MAG number 12 : March 00
 DECO-MAG number 13 : May 00

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The next comprehensive listing will be in September 01

EMO 01
Special issue

Mutual supply:

the target aimed for!

In DECO Mag 10, we started with a new series of articles dealing with the various partners required to supply our customers with a comprehensive and efficient range.



This edition will allow you to discover another jewel in Swiss industry.

We would also like to use this opportunity to introduce the **series 62 fast manual change-over system** of SCHAUBLIN, Delémont, so as to clarify this company's circumstances, especially with respect to the business unit of TORNOS-SCHAUBLIN at TORNOS-BECHLER SA.

Since the 1st January 2000, SCHAUBLIN has been part of an American group with its main office at Delémont / Switzerland (near Moutier). Its subsidiaries are located in France (Bovagnet) and the United States (Schaublin USA). Since 1915, SCHAUBLIN has specialised in the development, manufacture and sale of collets and tool-holders. The company's quality products are

known throughout the world thanks to their high precision and excellent reliability. This company has no other links with TORNOS-SCHAUBLIN apart from those it offers based on tooling availability for the particular machines in question.

To overcome the problems associated with fast and accurate tool changing for all types of machines, SCHAUBLIN developed the series 62 fast manual change-over system. Having been available on the market for a long time now, this system provides complete customer satisfaction, irrespective of the machine used. It reduces machine

start up time whilst simultaneously maintaining a very high degree of precision.

These items are used by TORNOS-BECHLER essentially on the MULTI-DECO, but are also available for the DECO 2000 – 20 and 26 mm capacities.

After having been contacted by our journalist, SCHAUBLIN engineers highlighted the following benefits for the SCHAUBLIN series 62, fast manual change-over system :

- ◆ Excellent concentricity < 10 µ.
- ◆ Highly robust.
- ◆ Good axial and radial positioning accuracy of < 10 µ.
- ◆ Much reduced deformation.
- ◆ Highly reduced cone wear.

- ◆ No cone sticking.
- ◆ Increased useful life of tools and spindle.
- ◆ Maximum tool output.
- ◆ Reduced tool change-over time (less than 10 sec.).
- ◆ More time to start up the machine.
- ◆ More time to change worn or broken tools.
- ◆ More time to pre-adjust tooling.
- ◆ Facility of working at high speeds (using balanced parts).

This system can be adapted to the majority of existing machines, whether of old or recent design. The increase in time is all the more important given the fact that the machines have dead times for tool changing or adjustment times, following replacement of the tools removed.

Where tool changes are frequent, this investment will have paid for itself in a very short period of time.

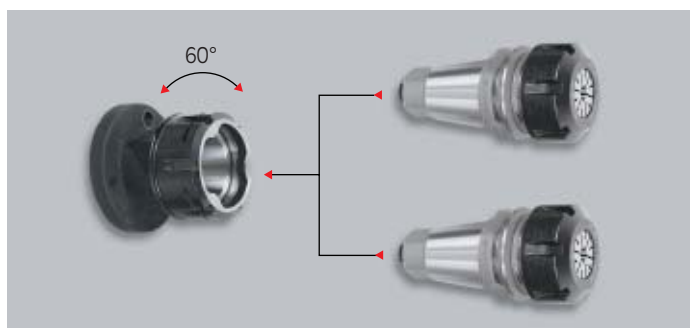


On cylindric body set-up example



SCHAUBLIN: your precision and quality guarantee

Composition of the SCHAUBLIN series 62 fast manual change-over system



Fast manual change-over with bayonet system (60°)

The SCHAUBLIN fast manual change-over system comprises three elements:

- ◆ The basic body.
- ◆ Fast change-over bolt.
- ◆ Interchangeable extension piece.

They are divided into two groups : normal machining and balanced machining for high speeds.

Description of the SCHAUBLIN series 62 fast manual change-over system:

The basic body is the intermediate part fitted directly onto the spindle of the machine.

The shaft may be of the standard, cylindrical or special type, depending on the fixing system on the machine.

The front part is derived from the collet-holder system of Group E (DIN 6499), but the front face is ground in relation to the internal cone (cone-face system) whilst the rear section of the cone ends in a triple-flat drive section.

The fast change-over bolt has the same external dimensions as the EX bolts of SCHAUBLIN. The front section comprises three spigots, which allow the extension piece to be tightened in place by turning 60° only (bayonet system).

The extension piece is the interchangeable element of the system. The triple-flat section ensures rotary drive. Regarding the rapid

change-over bolt, this comes in the following sizes : 16 ; 20 ; 25 ; 32 ; 40. These sizes correspond to the type ESX collet housing (DIN 6499). The front section can be executed in different ways meaning that all kinds of collet and tool holding systems can be used.

Do you have frequent setting-up changes ? Do you frequently change tools ? Are you interested in reducing the dead time on your small parts turning (or other) machines ? Are you interested in reducing production costs and increasing the efficiency of your machines ?

If so, the series 62, fast manual change-over system is your answer.

Do not hesitate to contact Schaublin SA for further information or documentation.

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MOTOREX-Focus: Cutting oils

for all different kinds
of non-ferrous heavy metals

MOTOREX has been involved in the research and development of new cutting oils for machining the most diverse of materials for many years now. For a long time, Langenthal has devoted itself to those products made from relatively soft non-ferrous metals, because, depending on material, the requirements of the machining fluids differ considerably from one another. Whether you are working with brass, bronze or copper – the level of quality inspections is being set higher and higher. This explains why the role of the high-quality cutting oil in the magic production triangle is gaining in importance.

nowadays conducted on automatic bar feeders in less than 5 seconds per workpiece, which demand absolute peak performance from the machine, tooling and cutting oil. Only when all three factors are at the same high level, has the investment in a super-modern machine been worthwhile. Therefore never try to save on any of the three magic success factors !

Non-ferrous metals have their own tradition

Did you know that around 2,500 BC, between the Neolithic period and the Iron Age, the non-ferrous metal, bronze, gave its name to a whole level of civilisation ? Bronze is a copper alloy containing more than 60 % copper, which, unlike brass, which is usually used today, contains no zinc or only very small proportions of zinc in addition to the main alloy additives (tin, aluminium, beryllium, lead). Non-ferrous metals are generally characterised by their great strength, good formability and good resistance to corrosion.

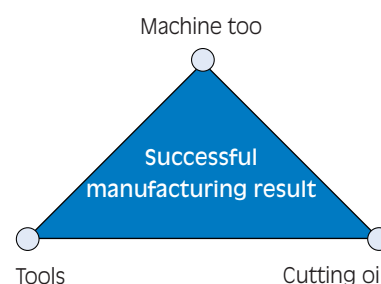
Nowadays, products made from non-ferrous metals are found in a wide variety of applications – from the plumbing industry to precision mechanics. Where workpieces are produced within a few seconds, they have to satisfy the high standards of the industry, whilst com-

plying with tolerances of up to < 0.05 mm. This is why a modern cutting oil, used in the machining of non-ferrous metals, has to have the following properties:

- ◆ *Good cooling, wetting and rinsing performance.*
- ◆ *Excellent lubricating properties.*
- ◆ *Rapid and good drain-off properties.*
- ◆ *Guarantee of no specking.*
- ◆ *Maximum environmental compatibility.*
- ◆ *Non-irritating to the skin.*
- ◆ *Good anti-corrosive property.*
- ◆ *Neutral smell, no oil mist is produced.*
- ◆ *Light, transparent colour.*

Because of the soft nature of the material, the cutting oil must have outstanding lubrication properties. Complex machining processes are

The three magic success factors



Modern cutting oils are capable of all this

Whether you are involved in general machining operations or difficult machining processes, such as broaching, thread cutting, reaming, deep-hole drilling, gear hobbing, gear production, cutting off, milling, drilling etc., what counts are the end result and the daily output. In co-operation with the leading machine manufacturers and raw material suppliers, MOTOREX has precisely formulated cutting oils in its range for each area of use. This

also includes several types, which are eminently suitable for machining the various non-ferrous metals :

The products of the SWISSCUT FRISCO family, type 305, 311 and 312, are very thin, high-performance cutting oils, which could only be formulated thanks to basic oils, which have been refined in a new way. This considerably reduced the tendency to evaporate. The big advantage of extremely thin cutting oils is the high degree of thermal conductivity, i.e. the more oil that flows past the workpiece, the more machining heat is dissipated. This prevents high temperatures and no oil mist or odour is produced. Other advantages that should be mentioned are the noticeably longer tooling life and reduced oil loss caused by the oil being drawn out with the workpieces.

The high-alloy MOTOREX SWISSCUT FRISCO 784 and 785 cutting oils can be described as the optimum addition in the high-performance

range. A complex package of additives guarantees optimum cutting values, much extended tool life and outstanding surface quality. Using the products mentioned increases in capacity of up to 20 % were achieved in practical tests.



MOTOREX product	Viscosity at 40°C (mm ² /s)	Brass	Bronze	Aluminium	SS
SWISSCUT FRISCO 305	ISO 5	X	X	X	-
SWISSCUT FRISCO 311	ISO 15	X	X	X	-
SWISSCUT FRISCO 312	ISO 22	X	X	X	-
SWISSCUT FRISCO 784	ISO 15	X	X	X	X
SWISSCUT FRISCO 785	ISO 22	X	X	X	X



Read the technical article by MOTOREX on the new generations of cutting oil for high-strength steels in No. 16 of the DECO-MAGAZINE.

If you have any questions with the machining of non-ferrous metals or other materials and the cutting oil that you should use, then please contact:

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or send an
e-mail for the attention of
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The Asian Market:

Encouraging Recovery Signals

After several years of decline, the Asian machine tool market seems to be experiencing a revival, especially in Japan.

By
Robert Froidevaux,
Asia Sales Manager
at TORNOS-BECHLER.



For TORNOS-BECHLER, this is a very important market with much development potential, especially for machines, such as the DECO 13 B i., which produce simple to fairly complex parts. What is more,



One of the challenges facing TORNOS-BECHLER was to find and motivate a partner to promote its products in Japan. Through the intermediary Coret AG, a Trading Company based in Zurich (which has been working with Japan for several decades), a new company was established in Tokyo in March 2000. This new company has become the exclusive agent of TORNOS-BECHLER in Japan.

The name, Swiss Technology Company Ltd. (STC), which clearly illustrates its purpose, was chosen. With offices in Tokyo and Nagoya, STC is made up of a team of skilled professionals, who have been

already having reached a milestone ; namely, within two months of the start of the company, it announced that a major Japanese client had placed an order for several dozen TORNOS-BECHLER machines exceeding a total of 10 million CHF.

This news is an encouraging stimulus to pursue our marketing policy and strategic vision. What is more, it is an excellent and highly cherished reward for the skills demonstrated by this new agency. Many congratulations.

Robert Froidevaux



thanks to its latest generation DECO and MULTIDECO single and multi-spindle range of machines, TORNOS-BECHLER SA can provide a solution to all requirements, ranging from simple to complex parts and small to large series runs. The DECO 2000 concept has been universally accepted and Asia seems to be sensitive to the performance-price-quality ratio of TORNOS-BECHLER SA products.

involved in machine tools and the latest technology for many years. The sales engineers, who are perfectly familiar with the latest TORNOS-BECHLER SA technologies, have the backing of a diligent after-sales department, which ensures rapid reaction and adaptation to customer requirements.

After being in existence for only a few months, STC can pride itself on

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