

DECO MAGAZINE

19

4/01

DECEMBER

ENGLISCH

Ever increasing
versatility...

ABB Full Service®
un atout pour
la productivité de
l'entreprise...

Rückschau
der Ausgaben

Astuzia: correzione
dei raggi
delle plachette

MOTOREX
SWISSCOOL –
kylning, smörjning
och spolning...

W&H: El hombre
en el centro de las
preocupaciones

Merry Christmas & Happy New Year



Merry Christmas and Happy New Year



IMPRESSUM

DECO-MAGAZINE 19 4/01

Circulation: 12 000 copies

Industrial magazine dedicated
to turned parts:

TORNOS SA
Rue Industrielle 111
CH-2740 Moutier, Switzerland
Internet: www.tornos.ch
E-mail: contact@tornos.ch
Phone +41 (32) 494 44 44
Fax +41 (32) 494 49 07

Editing Manager:
Pierre-Yves Kohler
Communication Manager

Graphic & Desktop Publishing:
Georges Rapin
CH-2603 Péry
Phone +41 (32) 485 14 27

Printer:
Roos SA, CH-2746 Crémines
Phone +41 (32) 499 99 65

DECO-MAG is available in
three versions:

- English / French / German / Italian
- English / French / German / Swedish
- English / French / German / Spanish

	Anton Menth	3
E	Business life around the world is getting more complex...	11
	ABB Full Service®: An asset to the company's productivity...	12
	DECO 20a, DECO 26a: a couple of steps further towards customer satisfaction	15
	Ever increasing versatility...	16
	Summary of publications	18
	W&H: Dental technology at the forefront of world innovation...	22
	DECO 2000... DECO, a name is simplified...	25
	MOTOREX SWISSCOOL – cooling, lubricating and rinsing...	26
	Tip: Compensating the plate radius	28

	Anton Menth	5
F	Nos clients sont exceptionnels...	31
	ABB Full Service® un atout pour la productivité de l'entreprise...	32
	DECO 20a, DECO 26a: deux pas de plus vers la satisfaction de notre clientèle	35
	Toujours plus d'universalité...	36
	Récapitulatif des parutions	38
	Astuce: correction de rayons de plaquettes	44
	MOTOREX SWISSCOOL – Refroidir, lubrifier et rincer...	46
	W&H: une technique dentaire à la pointe de l'innovation mondiale...	48
	DECO 2000... DECO, une simplification des appellations se dessine...	51

	Anton Menth	7
D	Unsere Kunden sind einmalig...	53
	ABB Full Service® eine bessere Unternehmensproduktivität...	54
	DECO 20a, DECO 26a: zwei weitere Schritte in Richtung Kundenzufriedenheit	57
	Immer vielseitiger...	58
	Rückschau der Ausgaben	60
	Weltweit innovative Dentaltechnik von W&H	66
	Trick: Korrektur des Schneidplattenradius	70
	MOTOREX SWISSCOOL – kühlen, schmieren und spülen...	72
	DECO 2000... DECO, eine voraussehbare Namens Kürzung...	74

	Anton Menth	75
E	TORNOS, hablamos su idioma.	77
	ABB Full Service® una ventaja para la productividad de la empresa...	78
	Cada vez más versátil, cada vez más universal	80
	DECO 20a, DECO 26a: dos pasos adelante hacia la satisfacción de nuestros clientes	82
	Ayuda para la corrección de radios de plaquita	84
	W&H: Una técnica dental en el punto de innovación mundial...	86
	DECO 2000... DECO, una simplificación de la marca	89
	MOTOREX SWISSCOOL – Refrigerar, lubricar y limpiar...	90

Ladies and gentlemen, dear clients,

The success of the DECO product range and the confidence our customer have resulted in an unprecedented growth to TORNOS. The slow down of the world economy during 2001 and eventually the tragic events of September 2001 have created a strong feeling of uncertainty in the business environment with forceful consequences at least for the coming months.

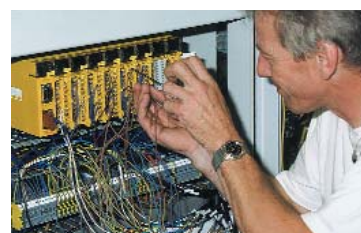
Since the publication of our first half-year accounts in August, the market situation has become even more demanding and we are feeling the precursor of a recession. The overall forecasts of results for this year are quite satisfactory and we are delighted to see that the DECO solutions are continuing to provide real benefits to our customers, the numbers of which continue to grow.

Unlike the fiscal year 2000, TORNOS started the year 2001 with a full

first of all enabled TORNOS to benefit from the important injection of capital amounting to CHF 100 million and to create a financial structure thereby allowing the company to develop its growth potential. The pursue of the "TORNOS Renewal" program with its investment policy in new products and modern production facilities reinforces the Group's position for the future.

Despite the general slowing down in the market and some cancelled orders, a large number of new customers have become DECO users. The number of clients already using several DECO machines, is constantly on the raise.

Despite these encouraging aspects, we decided in view of the global market situation to implement a restructuring plan, which



involves the lay off of 200 group employees and a partial reduction of working hours. These measure preserve the means for the future development of the company.

We are able to respond perfectly to the demands of our customers and future developments in the market.

During the past years, the TORNOS Group invested more than CHF 70 million in highly automated production installations and in constantly developing the DECO range of products. These investments give the company all the flexibility required to improve on the current situation whilst also providing it with the means to react quickly and efficiently when things start to look up again.

order book awaiting completion, which largely explains why the slow-down has only been felt fairly late on in the year. The record number of orders achieved during the fiscal year 2000 was followed by a slow reduction in orders during the first half of 2001 and a rapid drop for the second half-year.

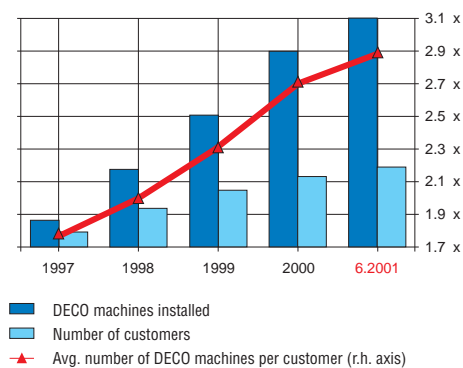
The entry of TORNOS to the stock market had a dual positive effect. It



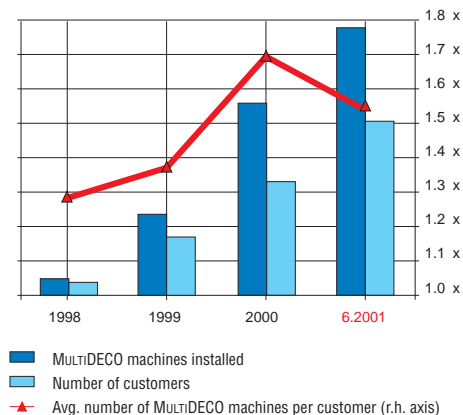
The reduction of the backlog will again enable us to offer more acceptable lead times in the very competitive environment. Short lead times are essential and reduce the risk to lose orders due to excessive delivery periods, which both you and we had become accustomed to during the past year.

The 3200 plus DECO machines in service throughout the world with our customers, coupled with the every growing interest in the DECO concept encourage us to continue with this trend.

Installed DECO machines and customers



Installed MULTIDECO machines per customer



The present situation in no way jeopardizes our current market position and we are actively continuing with our aims to satisfy your requirements by offering improved products and services.

We are currently in a planning phase for the next year and it is our intention to meet you at almost 50 trade fairs throughout the world. This will provide you with the opportunity of (re)discovering how you could benefit from us!

Let us take up the challenges of the future together.

We look forward to seeing you soon.

Kind regards



A. Menth
Anton Menth

Business life

around the world is
getting more complex...

...more complicated, more arduous and more demanding. As it is difficult to obtain new business, it leaves many companies with a serious decision: do they continue as they are and risk losing their existing business or do they look for new business and even better ways of supplying their existing customers?

At TORNOS, we firmly believe that the companies of tomorrow will automatically follow the second option and that is why TORNOS have been continuing to develop new machines and improve their existing products.

Lets look at what has recently been offered:

DECO 42f: The DECO concept on the sliding heads took the turning world by storm. Why was that? Yes, the TB-DECO software was and still is revolutionary. Off-line programming has so many advantages, it can be so easily updated, there are so many facilities, safety, cycle time, tooling listings etc. If it were not so, why would many of our competitors now be trying to offer similar?

But it wasn't just the software, the kinematics of the machine also had to be designed to allow the machines to be so flexible and so productive, with 4 tools operating together. So now this can be done on a fixed head machine with the 42f. Just think of the advantages, 4 tools, each with Y-axis and 15 kW at each spindle.

MULTI-DECO 32/6i: More capacity, more power, integrated barfeeder and stronger slideways.

DECO 20a and 26a: Different horizontal guarding with a stronger window security. Stronger sub-spindle and counter-balancing and many more optional features across the range, making the machines even more flexible.

But, what of the future? Have we done enough and do we stay where we are? The answer is a resounding NO.

- ◆ Look out for the new MULTI-DECO 20/8 with the facility of two parts / cycle bringing the MULTI-DECO flexibility to the productivity of the simpler lower cost parts.
- ◆ Look out for the other size versions of the DECO 13bi concept.
- ◆ Could there be other sizes of the MULTI-DECO or the 42f?

TORNOS believe that we must continue to improve and by doing so, allow our customers to improve. But what of the existing machines? TORNOS believe that every assistance must be made to ensure these continue to be as flexible, productive and accurate as they have always been and, hence, offer full assistance with preventative maintenance, retraining, updates with the latest techniques and software.

We offer standard packages but are always willing to discuss modifications to suit your individual company requirements. TORNOS will help you to meet the needs of the future so that you can offer to your customers the best, most flexible and cost effective way to produce your parts.

The companies of tomorrow are making constant improvements today. Investments today make tomorrows' business.



David Wilcock

David Wilcock
Managing Director
TORNOS TECHNOLOGIES UK Ltd

ABB Full Service®

An asset to the company's productivity ...

TORNOS recently signed a partnership agreement with ABB, with a view to optimizing the maintenance of its production equipment. The editorial staff of DECO Magazine made some enquiries and will now let you discover the full details and outcome of this event.



Why such a partnership?

Benefiting from the most modern processes to maintain machine fleets, ABB is an indispensable support for the machine manufacturer, TORNOS SA in Moutier. The acknowledged aim of this partnership is to increase the productivity of production installations.

In the words of ABB, *"TORNOS, a high precision machine manufacturer, is well known throughout the world for its exceptionally high quality automatic lathes. This level of quality, coupled with a vast ability in innovation and the continued increase in the number of machines supplied, inevitably entails researching ways of optimizing the pertinent means of production"*.

The ABB Full Service includes a management system consisting of a range of measures, which are intended to maximize the effectiveness of all installations (OEE), whilst at the same time taking account of the safety of persons, the environment and means of production. This system can be perfectly incorporated in current company concepts.

A well run-in process

The first stage of a Full Service partnership starts with a feasibility study. Very often, as a result of prudent benchmarking, the results reveal a strong potential and the information resulting from these form a working basis for the opti-

mization programs. The accumulated experience gained by ABB during the numerous projects already executed, confirms that the production process can be influenced in a positive and on-going way by professionalizing maintenance, thereby also achieving a marked and long-term increase in productivity.

ABB Full Service is represented throughout the world. As with the complete ABB offer, the production installations service is organized by groups of clients, so as best to meet individual requirements. To date, roughly 3000 ABB Full Service® contracts ensure long-term cooperation based on a partnership conducted along "win-

ning" lines throughout the world. In Switzerland, the ABB maintenance specialists are responsible for the following Full Services (as at 9.2001):

ABB Full Service® Switzerland



- ◆ Injecta Druckguss AG, Teufenthal
- ◆ ABB Hochspannungstechnik AG, Oerlikon
- ◆ TORNOS SA, Moutier
- ◆ Alcan Rorschach AG, Rorschach
- ◆ ABB Turbo Systems AG, Baden

A vast range of services...

This service is completed by a maintenance offer that takes account of production installation requirements, in other words, machine conversions, crane service, maintenance, consulting engineers, as well as actual production services, such as sheet-steel machining, machine and cowl construction and also assembly work.

At Moutier, the Unifer service headquarters operates with ten staff. ABB is committed to increasing the productivity of manufacturing departments on a daily basis, especially through the use of ABB Full Service® methods, both for existing installations and for the new production lines undergoing construction.

...and tooling

Presentation of the maintenance tools commonly used on a Full Service site. ABB can also propose this tooling, even beyond this type of partnership.

Scope- analysis of installation availability

Scope is an IT module. It permanently measures the availability, productivity and quality of a single machine or even of complete systems. Downloading the Overall Equipment Effectiveness (OEE) with Scope will make it possible to determine the actual weak points and to test the effectiveness of the means used. The experts of ABB

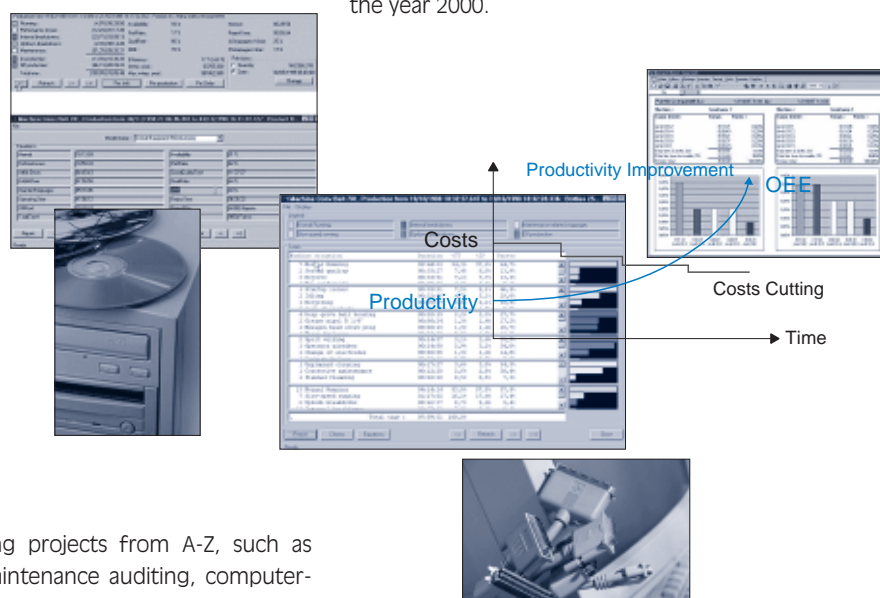
Unifer SA will be happy to install these units and provide assistance in their commissioning and in interpreting the results and also in adapting any improvement measures. There are, in practice, many examples demonstrating a substantial potential for improvement, since a vast number of production installations have a yield of less than 60 %.

Maintenance engineering

In order to optimize the maintenance and production facilities, the specialists from Maintenance, Engineering & Consulting are run-

SAP R/3 CS. The maintenance-gear organization, coupled with the use of standards for each industrial sector, considerably facilitates implementation and generally achieves a faster return on investments.

Nowadays ABB Unifer SA is involved in expanding its "Full Service" facilities to production sites throughout Switzerland. ABB Unifer SA is currently employing around 360 staff in Switzerland and had an order book totaling CHF 98 million for the year 2000.



ning projects from A-Z, such as maintenance auditing, computerized maintenance management systems (CMMS), project development, change management and so on. This team of specialists is organized as a general unit but is also specifically geared to the different sectors. This means that specialist industrial sector know-how is always available to the team as a whole, thereby enabling it to exchange experiences.

CMMS maintenance software

Both the scheduling and control of maintenance operations can be improved through the use of ad-hoc software packages. ABB Unifer SA has experienced specialists entrusted with support when launching and installing these software packages, including Maximo and

The technological consortium of ABB in Switzerland employs around 8,100 staff, covering production, procedures and consumption, as well as some sub-contracting companies.



For further information about the Full Service, please contact:

ABB Unifer SA

Zentralstrasse 40
Tel. +041 (0) 56 205 77 66
Fax +041 (0) 56 466 50 88
e-mail: unifer.hotline@ch.abb.com
Home page: www.abb.ch/unifer

DECO 20a, DECO 26a:

a couple of steps further towards customer satisfaction

Unveiled at this year's EMO in Hanover, the DECO 20a represents a successful upgrade of the well-known DECO 2000, 20mm capacity, whilst the DECO 26a has replaced the DECO 2000, 26mm capacity.

The DECO 20a/26a were designed to provide an efficient response to the different relevant statistical comments from hundreds of users.

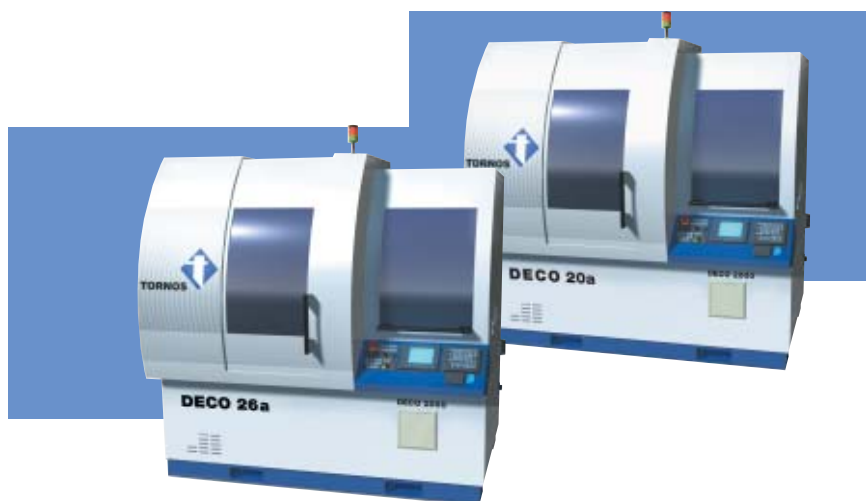
Like with all products, the DECO is constantly being improved in line with your requirements.

The main changes include the exterior styling, cross slides supporting the counter-spindle, the parts manipulator, the twenty bar pump and the facility of fully integrating the filtration unit.

A few details...

Special emphasis was placed on designing an integral, "new look" exterior to guarantee reliable workplace ergonomics for the operators, especially during the setup and when changing over to new products. This upgrade (horizontal sliding door) drastically changes the appearance of the machine, which, although it retains its "pure DECO" characteristics, is tending towards a more aggressive line.

The completely new parts manipulator fits in beautifully with the modifications made to the exterior.



The entire slide units, (3 PNC X4 / Y4 / Z4 axes) supporting the S4 counter-spindle, have been thoroughly rethought. To achieve this, our engineers in "Research and Development" incorporated a new bearing and ballscrew technology, which includes a system for compensating for stresses and possible shocks.

TORNOS patented this upgrade during the design stage of the DECO 42f.

These items are as much protection and safety devices aimed at increasing the machine's useful life, whilst optimizing production.

As for the 20 bar pump, this is fitted to the base of the machine to improve the coolant flow onto the tools, to optimize counter-spindle cleaning and to enable the use of

an oil bore drill. The use of this pump also enhances the quality of your "single turned" products.

The extraction and oil mist filtering device is fitted to the machine exterior, thereby dispensing with the bracket and connection hoses.

All these upgrades are new features, which reinforce the strength, capacity and productivity of these two products. As for the customer, the reliability of the machine is unchanged (the kinematics are practically identical), as are also the numerous machining possibilities and strengths of the DECO concept.

Any tooling and units in service with existing customers will obviously remain unchanged and not be subject to any restriction.

Ever increasing versatility...

With the aim of providing a better service and response to customer requirements, we would like to present in this edition of the DECO magazine, the various options recently proposed for the DECO 13a, DECO 13b and the DECO 20a and 26a.

Option 1630

A cutter/slitting spindle unit for the ESX 20 collet (max. cutter diameter 40mm)



Application

This unit is intended for all slitting operations not requiring a large cutter diameter, but one that exceeds 20 mm. The widely used 40-mm diameter slitting machines are given a perfectly adapted support here.

Ideally, this device will complete the range of slitting options on offer to date (1620 for cutters with a max. diameter of 20 and 1640 for slitting cutters with a max. diameter of 63 mm) and enhance the spectrum of potential cutting / slitting operations.

Comment

This device is designed to accommodate the ESX 0.5 to 13mm collets and adapters, including the expansion mandrel for the ESX 16 collets (option 1650) or the cutter holder mandrels (options 1650, 1660, 1670).

Compatibility

DECO 13a and DECO 13bi

Technical characteristics

Max. speed: 8000 rpm

Fitting

location on the DECO 13a:

T13,14, 15 on X1/Y1 and T23, 24, 25 on X2/Y2

Fitting

location on the DECO 13b:

T13, 14 and 15

Option 5422

Longitudinal swarf conveyor type Ind'Ass with scrapers for all types of swarf.

Application

This unit is intended to replace the conventional conveyors, oil pan and swarf tray. Assembling this installation will transform the machine into a universal and integral means of production.

Comment

This device can be adjusted in relation to the type of swarf and production. It has already been successfully used for several DECO 20 and 26 machines.

Compatibility

DECO 20a and DECO 26a

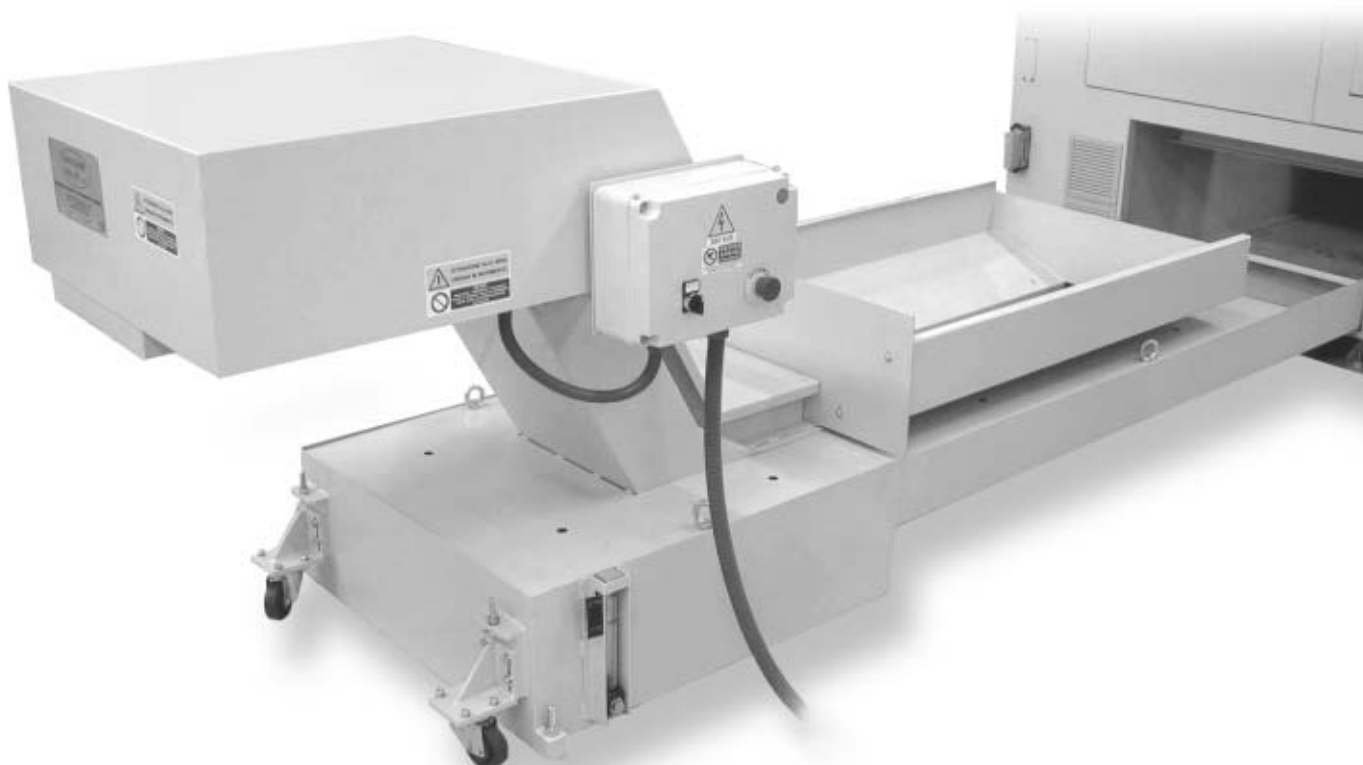
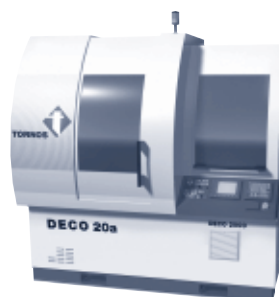
Technical characteristics

Belt with scrapers, 30 mm high

Belt drive with geared motors

Oil pan capacity : 540 litres

Warning, a 2 m engaging and extraction area is required on the left side of the machine.



Summary

of publications

DECO-Magazine: a source of information at your service.

As we mentioned over a year ago, we publish, once a year, a summary table of articles published in the DECO Magazine, so that you can quickly locate items that are of interest to you. Do not hesitate to request any missing copies. We will be pleased to send them on (stock permitting).

The intention of DECO Magazine is to be a useful and valuable publication. It is open to all suggestions and ideas. Would you like an article to be published on a special subject? Or be given a tip on quite an unusual operation?

Please let the editorial staff know of your wishes. Where possible, we will endeavour to reply.



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 20)	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., MULTIDECO 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	MULTIDECO 20/8: and three MULTIDECO machines	12
News	SIAMS 2000: the meeting of microtechnologies	13
News	New layout for the DECO-Magazine	13
Forum	The Asian Market: Encouraging Recovery Signals	14
Presentation	Mutual supply: the target aimed for ! SCHAUBLIN SA	14
Forum	New corporate name ! TORNOS Services S.A.	15
The present	TORNOS-BECHLER plans to enter the stock market	15
The present	New identification	16
Presentation	The world tour of our agents: Ehn & Land, our Swedish partner	17
The present	EMO 01: DECO 42f, MULTIDECO 32/6i, Robobar SMF-522/8, DECO 20a	18
Presentation	HSK 32 tools for the DECO 42f: A proven clamping technique...	18
Presentation	ABB Full Service ®: An asset to the company's productivity ...	19

All the displayed devices and attachments...

Editorial
Forum
Interview
News
Presentation
Technical
The present

The present

E

Table summarising the published options in DECO-Magazine

Option	Designation	DECO	Deco Mag n°	
3800	Internal thread miller, for counter-operation	10a	8	
3810	Fixing system for the whirl cutter spindle	10a	8	
4400	Internal thread miller, for operation	10a	8	
4410	Fixing system for the whirl cutter spindle	10a	8	
4900	Long parts extractor	10a	7	
4950	Pneumatic device for extracting and evacuating long parts with bar pusher	10a	10	
5430	Suction device for oil and emulsion mist	10a	7	
5440	Electric cabinet air-conditioning unit, type "McLean Slimboy"	10a	10	10a
1120	2-position curved tool holder for end-working parts	13a	11	
1630	A cutter/slitting spindle unit for the ESX 20 collet (max. cutter diameter 40mm)	13a	19	
2000	High-frequency spindle	13a	16	
3350	Milling/drilling unit, with rotation axis perpendicular to the spindle axis, for assembly on an end device	13a	17	
4900	Device for extracting, evacuating and recovering long parts	13a	12	
5200	6-bucket part recovery unit	13a	16	
5255	Tool lubrication pump, 20 bars with additional tank	13a	12	
5270	Conveyor belt	13a	14	
5420	Small chip swan-neck scraper conveyor	13a	11	13a
310	LNS Tryton 112 CNC type bar feeder hybrid with 28 tube barrel	13b	15	
370	Oil cooled bar feeding tube in LNS type HYDROBAR HYS 3.16	13b	15	
1630	A cutter/slitting spindle unit for the ESX 20 collet (max. cutter diameter 40mm)	13b	19	
2000	High-frequency spindle	13b	16	
4900	Device for extracting, evacuating and recovering long parts	13b	16	
5255	Tool lubrication pump, 20 bars with additional tank	13b	16	
5420	Small chip swan-neck scraper conveyor	13b	16	
5465	Device for recovering parts using the guide bush	13b	17	13b
940	Spindle lock	20a	7	
1650	Revolving spindle milling/slitting unit for circular ESX 25 chucks	20a	4	
1680	Geared down tool holder to increase torque	20a	9	
1800	Gear hobbing unit	20a	5	
1900	High speed external thread miller	20a	8	
1910	Milling head with tool centring system	20a	8	
2100	High-frequency revolving spindle for drilling, milling and slitting operations, running at 15000rpm for light operations	20a	4	
3240	Triple tool holder for end boring for commercial tooling	20a	4	
3300	Long revolving drilling/milling spindle unit for ESX 25 chucks	20a	6	
3350	Differential spindle	20a	6	
4550	Longitudinal S5 motor for driving the revolving units in positions T41-T44	20a	6	
4600	Tilting tool holder for counter-operation	20a	9	
5010	High pressure drilling device	20a	5	
5255	Lubrication distribution group	20a	14	
5272, 5275	Conveyor belt removal device	20a	9	
5422	Longitudinal swarf conveyor Type Ind'Ass. with scrapers for all types of swarf.	20a	19	
5440	Electric cabinet air-conditioning unit, type "McLean Slimboy"	20a	10	
5460	KELVIN oil cooling device	20a	14	20a
2420, 2430				
2440, 2450	Cross drill for the MULTIDECO 26/6	26/6	12	26/6
940	Spindle lock	26a	7	
1650	Revolving spindle milling/slitting unit for circular ESX 25 chucks	26a	4	
1680	Geared down tool holder to increase torque	26a	9	
1800	Gear hobbing unit	26a	5	
1900	High speed external thread miller	26a	8	
1910	Milling head with tool centring system	26a	8	
2100	High-frequency revolving spindle for drilling, milling and slitting operations, running at 15000rpm for light operations	26a	4	
3240	Triple tool holder for end boring for commercial tooling	26a	4	
3300	Long revolving drilling/milling spindle unit for ESX 25 chucks	26a	6	
3350	Differential spindle	26a	6	
4550	Longitudinal S5 motor for driving the revolving units in positions T41-T44	26a	6	
4600	Tilting tool holder for counter-operation	26a	9	
5010	High pressure drilling device	26a	5	
5255	Lubrication distribution group	26a	14	
5272, 5275	Conveyor belt removal device	26a	9	
5422	Longitudinal swarf conveyor Type Ind'Ass. with scrapers for all types of swarf.	26a	19	
5440	Electric cabinet air-conditioning unit, type "McLean Slimboy"	26a	10	
5460	KELVIN oil cooling device	26a	14	26a
5013	Self-Adjusting high pressure lubrication device	all machines	15	
5480	Fire-protection equipment	all machines	18	

All these options are equally available on Web Page:

http://www.tornos.ch/eng/products/prodFrame_options.html

Summary

of publications

The programming tricks at your service...

Table summarising the published tricks in DECO-Magazine					
Tricks	DECO 20a/26a	DECO 10a	DECO 13a	DECO 13b	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	—	—	—	—	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
How to overcome a looping error ?	Standard	Standard	Standard	Standard	14
How to overcome a looping error on a spindle ?	Standard	Standard	Standard	Standard	15
Optimum use of the polygon function	Standard	Standard	Standard	Standard	16
New macro versions for the TB-DECO 5.05	Standard	Standard	Standard	Standard	17
Compensating the plate radius in the TB-DECO	Standard	Standard	Standard	Standard	18
Compensating the plate radius in the TB-DECO	Standard	Standard	Standard	Standard	19

All these tricks are equally available on Web Page:
http://www.tornos.ch/eng/TB-DECO/default.taf?page=astuces_Submenu.html

Presented customers, partners...

Table summarising the company profiles		
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
Leghe Leggere Lavorate	DECO 2000, a reliable partner in the real world of continual development...	14
Finnveden Powertrain AB	on the DECO 2000	15
Neida Products	World class supply	16
Rielda	Technology and fantasy in true Italian style...	17
W&H	Dental technology at the forefront of world innovation...	19

New concepts, new philosophies, etc...

Table summarising the conceptual 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
Interview	Services & Business Units: a logic that commands respect!	15
Interview	Professional management of the sub-contracting process	17
Tricks	Compensating the plate radius	18

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	13
Motorex-Focus	Cutting oils for all different kinds of non-ferrous heavy metals	14
Motorex Intact	VOC-free corrosion protection	15
Robobar MSF 522/8	A new barfeed for the MULTI-DECO 20/8	16
Motorex	Performance-enhancing cutting oils	16
MULTI-DECO 32/6i	A multispindle turning cell all in one !	17
Motorex-Focus	So that your DECO runs and runs and runs...	17
MULTI-DECO	Announcing a new MULTI-DECO...	18
Motorex-Focus	Motorex Swisscut, High-performance cutting oils of the future	18
Mapal	HSK 32 tools for the DECO 42f: A proven clamping technique...	18

The above mentioned articles were up-to date when published, and as our products evolve rapidly, you can sometimes find that items are obsolete. In order to see the chronological order of contents of every issue, we also publish a reminder of these...

DECO-MAG number 1	: May	97	DECO-MAG number 10	: Sept.	99
DECO-MAG number 2	: Sept.	97	DECO-MAG number 11	: Dec.	99
DECO-MAG number 3	: Dec.	97	DECO-MAG number 12	: March	00
DECO-MAG number 4	: Feb.	98	DECO-MAG number 13	: May	00
DECO-MAG number 5	: May	98	DECO-MAG number 14	: Sept.	00
DECO-MAG number 6	: Sept.	98	DECO-MAG number 15	: Dec.	00
DECO-MAG number 7	: Dec.	98	DECO-MAG number 16	: Feb.	01
DECO-MAG number 8	: Feb.	99	DECO-MAG number 17	: May	01
DECO-MAG number 9	: May	99	DECO-MAG number 18	: Sept.	01

W&H:

Dental technology at the
forefront of world innovation...

...the man at the heart of the matter.



In the dental technology sector, W&H is one of the world's major producers. The Austrian, family-run company at Bürmoos near Salzburg is represented throughout the world by its top quality products.

The W&H product range extends over four major sectors: the instruments used in dental technology, the instrument maintenance and hygiene sector, the equipment used in dental surgery and finally, the equipment and apparatus used in dental laboratories.

The rotary cutter drives used in dental equipment represent a major part of production.

Regarding the production of these top quality products, the Salzburg company can proudly look back over its long 111-year history. In 1890 in Berlin, two precision engineers, Messrs. Weber and Hampel, started to produce square dental parts with manual drive. They were the pioneers in Europe. In 1944, the company moved to Bürmoos. In 1946, Mr. Peter Malata, graduate engineer, took the helm of the company and became its owner in 1958.

Throughout these years, the Malata family succeeded in making the company prosperous. The second generation – Messrs. Peter Malata junior (commercial manager) and Dr. Bernd Pippel (duly authorized representative) – took control 5 years ago.

Located near Salzburg, the festival city, the Bürmoos plant has always been one of the main employers of the region. Roughly 90 % of its employees are from the surrounding region. However, the region covered by this company, with a workforce of more than 450, extends from Mondsee to Bavaria and from Hallein to Braunau!

The human element

The company philosophy upheld by the Malata family has always been the main reason for the enormous success of the company. This philosophy is based on the concept that each human being is the center of interest for each thought and action. This applies to staff, clients and also extends to the patients.

Complying with company culture is likewise a very important value. The emphasis is placed on staff solidarity and co-operation amongst the teams working independently. A major part of W&H production is performed by the assembly teams: assembly is only completed on an order basis, but within a time of 24 hours. Throughout this time, the team is wholly responsible for the packaging and final inspection.

The motto "technology combined with culture" represents an important aspect for productive and satisfactory working. The feeling of solidarity in a "dentist family" is undoubtedly one of the success factors for the motivation and loyalty of the company. Some of the staff, who will shortly be leaving, started work at W&H as apprentices!

Certified quality

The prosperity of man is also of paramount importance at W&H. Quality and extremely high precision are of particular importance, especially in the medical sector. The on-going research is aimed at providing the best possible quality and accuracy, which entails conscientious and responsible work on the part of all those involved. Development is one step further into the future, with the human being at the center of all preoccupation.

The Salzburg company always provides an unrivalled standard. This company, which is certified to ISO 9001 and EN 46001, always complies with – if not exceeds – the most stringent European quality standards! W&H also complies with the GMP (Good Manufacturing Practice) quality standard.

Research and development

Behind all these high quality W&H innovations, is a very future-oriented way of thinking and an outstanding technical know-how. The research and development teams are endlessly working to develop new technologies – always in close co-operation with the research in-

stitutes and universities throughout the world. Many patents and inventions provide evidence of a high level of quality and ability.

For example, W&H are the inventors of a quick-clamping system operated by push-button (tool change at the dentist's), which nowadays is regarded as standard in dental technology.

The latest example of some of the many patents filed by W&H: the WA-99LT new generation of high-rotation-speed instruments. Given its reduced size, this is the perfect match of high-tech and very high performance, since it can reach speeds of up to 200,000 revolutions per minute.

Exporting and expansion

Located at Bürmoos, W&H export more than 90 % of its products to more than 80 countries throughout the world. This means that dentists, laboratories and dental hospitals from Argentina to Zimbabwe procure the best W&H quality products.

This well-organized distribution network also includes extensive assistance for all customers in all countries.

The W&H technical service is of the same standard throughout the world. To achieve this, the service engineers in all parts of the world, benefit from on-going instruction and training at the Bürmoos training center.

In order best to satisfy the ever-growing world demand for W&H precision equipment, the company recently underwent an expansion. During the spring, the company premises were re-dimensioned, so as to accommodate more space for research and development.



W&H:

Dental technology at the forefront
of world innovation...

...the man at the heart of the matter.



A true, future-oriented workplace

Not only was the surface area of the company enlarged – but the company is also looking at expanding its workforce. The number rose to 450 employees, with 100 new staff being taken on during the last 14 months alone!

W&H has, for some time now, placed special emphasis on reinforcing its base of specialist staff and academics. It goes without saying that qualified specialist staff together with academics could find interesting future areas of application! W&H staff are given good opportunities to prosper and develop their careers.



In all, the Bürmoos works provides a significant number of highly differentiated workplaces, because everything takes place under the same roof – from basic research, through administration to production and dispatch.

Research, development and production demand a lot of thought and skill from each employee. The systematic, on-going training forms a base to achieve a constant improvement in quality – along the lines of the saying: “you are as good as the weakest link!”

The emphasis is particularly placed on training the new generation. Each year, W&H trains about 10-13 young staff in six different apprenticeship courses. Both males and females are given the same opportunity.

The use of TORNOS machines for machining at W&H

For a number of years now, the company has enjoyed excellent commercial relations with TORNOS. This relationship started 25 years ago when the company purchased the first cam-operated, single-spindle automatic lathes for machining small complicated, precision parts. From a precision point of view, these parts were comparable to those parts machined for the horological industry.

As a result of this close co-operation, solutions to what seemed insoluble problems were found, thereby leading to new machining processes.

W&H machines tolerances of less than 0.01 mm on an automatic lathe and appreciates the quality of TORNOS machines.

On account of numerous determining market factors, marked by a much shorter product life cycle and by specific machining tasks for each client for small series runs, W&H started to replace its cam-operated machines with PNC DECO systems.

The firsts DECO was commissioned in 1998 and proved itself in a very short space of time. Since then, the production fleet has been extended to include 18 machines, as follows: 5 DECO 10, 10 DECO 13 and 3 DECO 20.

A change in raw materials, following hygiene requirements for dental instruments, also increased the need for machine flexibility and performance.

If in previous times, a good number of parts were designed in brass and aluminum, nowadays the majority of parts are made from stainless steel.

Based on this modern machining concept, we have succeeded in optimizing the cutting data which, coupled with special processes, such as high-pressure drilling, has resulted in more rational and economic machining when working with metals that make extreme demands on the machine (as is the case of stainless steel, for example).

The exceptional degree of precision, the rate of production, the quiet machining processes, coupled with satisfactory service, very soon provided W&H with convincing arguments in favor of the DECO lathes.

DECO 2000... DECO,

a name is simplified ...

News

At the EMO, TORNOS exhibited products where the "DECO 2000" name had been replaced simply by DECO... A new trend in description is now underway and it was our intention that DECO Magazine should deal with this matter.

At the EMO, TORNOS exhibited products where the "DECO 2000" name had been replaced simply by DECO... A new trend in description is now underway and it was our intention that DECO Magazine should deal with this matter.

In fact, this change has already been seen over a number of years and saw the light of day in the specialist press at the preview of the DECO 42f in March, since from this day onwards, DECO 2000 simply represented the name relating to the family and concept, but no longer to the actual product itself.



An overall "generation"-based approach

To simplify things, the family and concept are always labeled as the main "DECO 2000". On the products the "2000" has now been dispensed with to give way to an additional letter serving as a designation. The presence of an incorporated bar feeder is shown by the addition of an "i" to the name. (see picture)

With regard to the single-spindle, sliding headstock lathe – for example the DECO 2000 26 mm capacity – this has now become the DECO 26a, the DECO 2000 13 mm capacity is now the DECO 13a, whilst the DECO 13 basic i, is now simply known as the DECO 13bi.

The denominative letter has no particular significance with regard to the complexity of parts to be completed, the business unit or any other criterion – it purely identifies the DECO generation of the type in question. For example, a reasoned logic for "types of parts

that can be completed" cannot be applied here because there are several machines, all in different kinematic versions (DECO 10a, DECO 20a and DECO 26a). Machines of the same generation, already well known on the market, should therefore have been given different names – something which was not felt to be very prudent ...

It is quite conceivable that a third generation DECO 13 will see the light of day sometime in the future – logically, this will be referred to as the DECO 13c!

First generation DECO fixed headstock machines always start with the prefix "f" – an unlikely DECO 7 fixed headstock machine would therefore be referred to as the DECO 7f, a second generation of DECO 42f would also be named DECO 42g.

The multispindle lathes also come under this logic, but no immediate change is planned. The name was already fairly long and as the 2000

did not feature in the individual labels, the "a" is taken as read. The name MULTIDECO 32/6i, for example, already corresponds perfectly well with this new logic. Should a new version be launched (pure speculation and highly unlikely in the short-term, but nonetheless necessary for demonstration purposes), then this would be called the MULTIDECO 32/6bi.

Much more than just a name...

The brand is the past memory of a product – it is the brand that capitalizes on the values of its useful life and, with this trend, we are demonstrating that the DECO is a reliable reference in which the company places a lot of confidence and which is already well known to the market.

We would like to bet that, in future, this label will continue to be a symbol of quality and technological progress, with the customers always coming out well on top!

For small parts turning, working with emulsion is fairly restrictive, whilst the opposite is true when machining large capacity runs, where cooling commonly uses water-based liquids. TORNOS is launching the large capacity DECO 42f fixed headstock lathe, where the use of emulsion is far more widespread. Major developments have also taken place in this sector and our partner, MOTOREX, is undisputed leader... In cooling for machining difficult materials as high-alloy steel, aluminium and special aluminium alloys.

MOTOREX focus: MOTOREX SWISSCOOL – cooling, lubricating and rinsing...

...the new generation MOTOREX SWISSCOOL cooling emulsions are naturally quite capable of a lot more. They are used, for example, with the new and highly futuristic DECO 42f lathes manufactured by TORNOS and have succeeded in convincing the machining specialists of their extraordinary productivity.

Direct and efficient

The machining specialists are quite familiar with the stringent demands of each component in modern production processes. This is why MOTOREX does not simply offer one product, but rather a series of solutions destined for highly specific uses. The demands of the machine and lubricant change according to numerous parameters, such as bar diameter, for example.

A series of recorded tests and the prudent application of numerous tests clearly highlight the properties the cooling liquid should have with regard to all the machining parameters.

When developing the SWISSCOOL cooling emulsion range, the MOTOREX experts took account of the latest discoveries concerning the behavior of cooling liquids, the comments passed on by a large number of users and the requirements of the machine manufacturers. This enabled them to re-

solve the many requirements imposed by the different application techniques.

A new line has seen the light of day – this product can be diluted with water and is now completed by the new MOTOREX SPINDLE-KIT: a product kit designed for high-speed spindles.

MOTOREX SWISSCOOL – cooling emulsions point to new ways with respect to:

- ◆ Power
- ◆ Safety
- ◆ Service life
- ◆ Handling

To help you achieve your very demanding production targets, or better still, to allow you to exceed them, follow the path of some of the world's leading manufacturers in the various industrial sectors, which are currently highly success-



ful in achieving their very demanding targets. AIRBUS INDUSTRIES, for example, uses MOTOREX SWISSCOOL 7755 AERO-X for machining aeronautical components, such as base-plate rails, structural parts of the wings and so on.



The SWISSCOOL product at a glance:

Do you have any questions about the new series of SWISSCOOL products?

The experts at MOTOREX would be pleased to help!

MOTOREX AG
Service clientèle, /customer services/
MOTOREX SWISSCOOL
Case postale,
CH-4901 Langenthal
or send an e-mail to:
motorex@motorex.com

For further information on working with emulsion in general, please consult DECO Magazine 12.

Product	Type of machining and concentration									Material							
	Easy chip removal	Difficult chip removal	Turning, drilling	Bore grinding	Milling, sawing	Deep drilling	Thread cutting	Flat, internal/external cylindrical grinding	Deep and plunge cut grinding	Steel	High-alloy steel	Grey cast iron	Aluminium alloys	Special aluminium alloys	Magnesium	Non-ferrous heavy metals	Tungsten carbide
FRIGOSOL								3%									
SWISSCOOL 7300								4%									
SWISSCOOL 7400								3%									
SWISSCOOL 7700	5%	6%	6%	6%	8%	6%	8%		3%								
SWISSCOOL 7722	5%	6%	6%	6%	8%	6%	8%	3%	3%								
SWISSCOOL 7733	5%	6%	6%	6%	8%	6%	8%		3%								
SWISSCOOL 7744	5%	6%	6%	6%	8%	6%	8%										
SWISSCOOL 7755 AERO	5%	6%	6%	6%	8%	6%	8%										
SWISSCOOL 7755 AERO-X	5%	6%	6%	6%	8%	6%	8%										
SWISSCOOL 7766	6%	6%	6%	6%	8%	6%	8%										

Technical data subject to alteration.

Tip: Compensating

the plate radius:

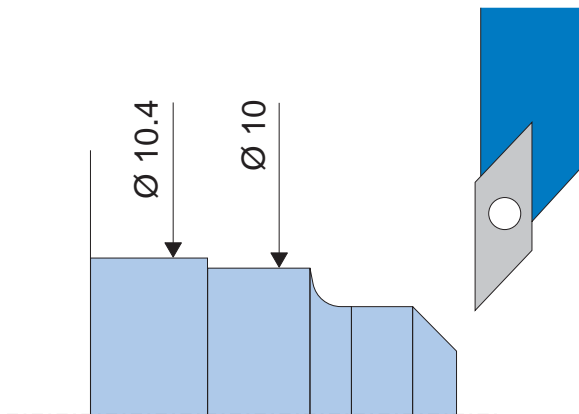
Following the article published in DECO MAGAZINE No. 18, here is a small tip to prevent a defect on the contour of the part.

The defect in question relates to rule 6d of the above-mentioned article:

The programmed contour segments must never be smaller than the plate radius.

In other words, the following contour:

Example:



Tool geometry:

T14	
X =	0
Y =	-2
Z =	-25
R =	0.8
Q =	3

A difference in diameter of 0.4 mm must be executed on this contour, between diameters 10 and 10.4. As the plate radius is 0.8 mm, the rule cannot be applied, thereby resulting in a contour defect (see fig. 1).

Programming:

```
G1 Z1 = 2 G100
G1 X1 = 3 G100 G42
G1 Z1 = 1 F0.1
G1 Z1 = -1 X1=7 F0.05
G1 Z1 = -5 F0.07
G2 Z1 = -6 X1=9 F0.02 R1
G1 X1 = 10
G1 Z1 = -10 F0.1
G1 X1 = 10.4 F0.05
G1 Z1 = -15
G1 X1 = 25 G100 G40
```



To avoid the above defect, it is sufficient to activate the linear extension on the plate compensation (G81) on the first code line and the defect will disappear. (Fig. 2)

By default, the circular extension (C82) is active at the start of each operation.

G1 Z1 = 2 G100 **G81**
G1 X1 = 3 G100 G42
G1 Z1 = 1 F0.1



Contour complied with a graphic explanation showing the path differences between the circular and linear extensions will be produced in a future edition of DECO MAGAZINE.

Thread whirling examples on the INTERNET:

Programming examples of an external thread whirling on the TB-DECO for the DECO 7/10, 13 and 20/26 machines are available for downloading on the TORNOS web site, at the following address: <http://www.tornos.ch/eng/TB-DECO/>

The programs relate to type parts with external thread whirling.

Detailed instructions of use and programming the external thread whirling for the various machines can be found in the service instructions "Options and their tooling".