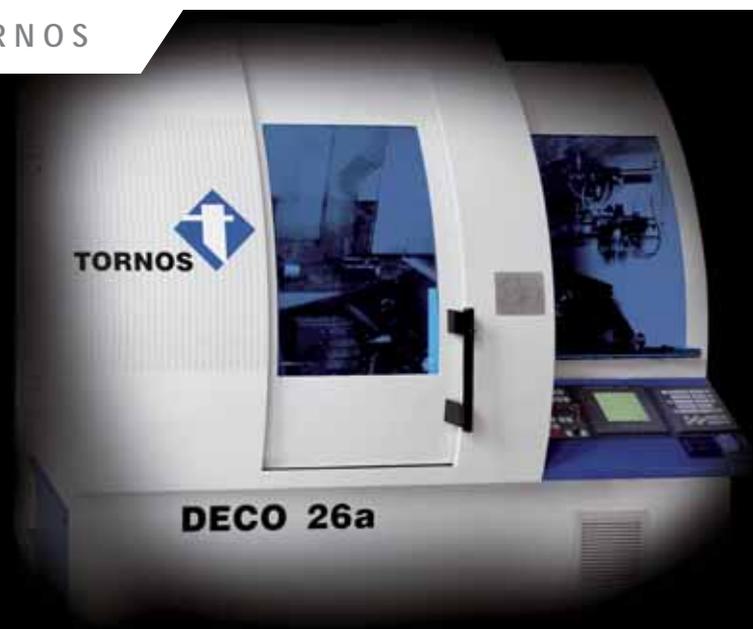




THINK PARTS THINK TORNOS



DECO 26a

The DECO generation
single spindle automatic lathe with sliding
headstock and parallel NC.

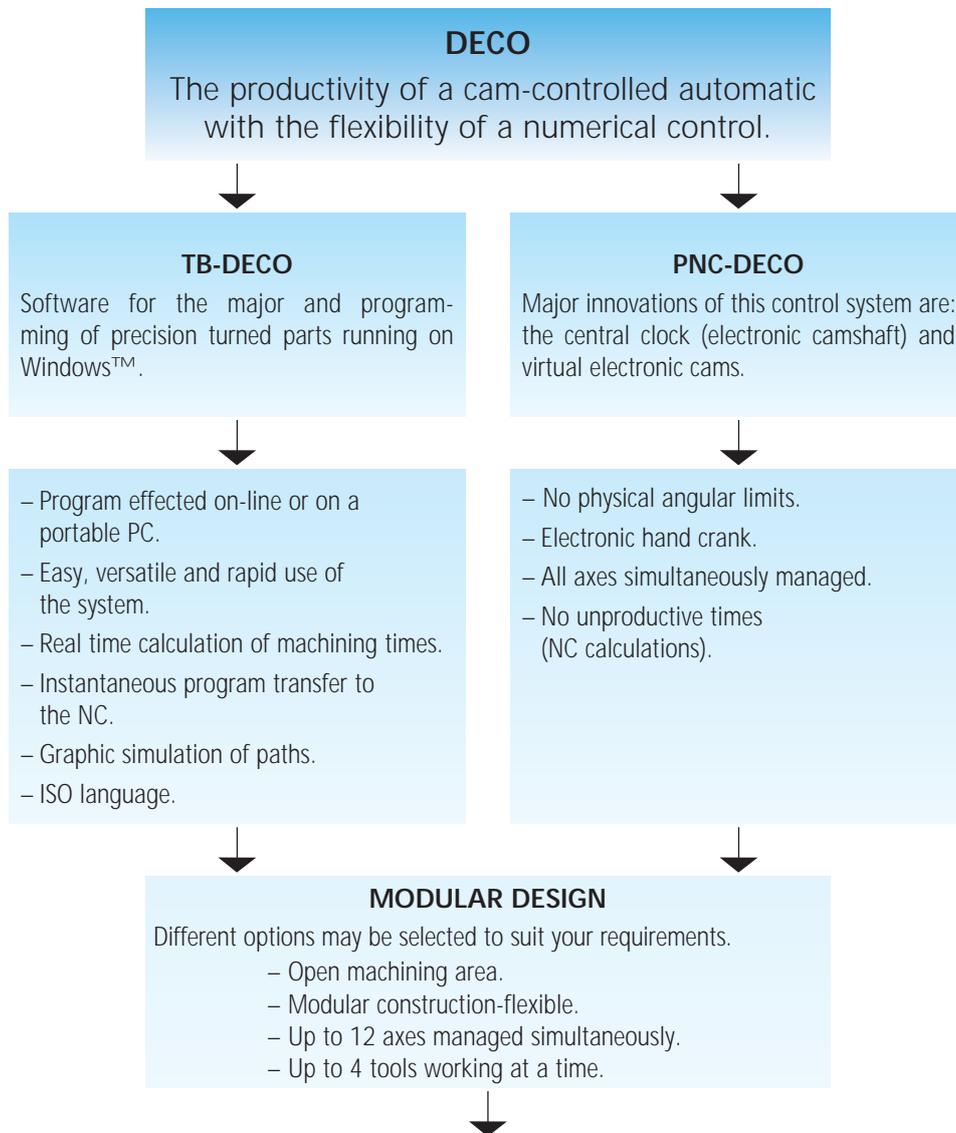
DECO 26a
THE DECO GENERATION
SINGLE SPINDLE AUTOMATIC LATHE WITH SLIDING
HEADSTOCK AND PARALLEL NC



Joining together the advantages of both past and present conventional control systems in the same product

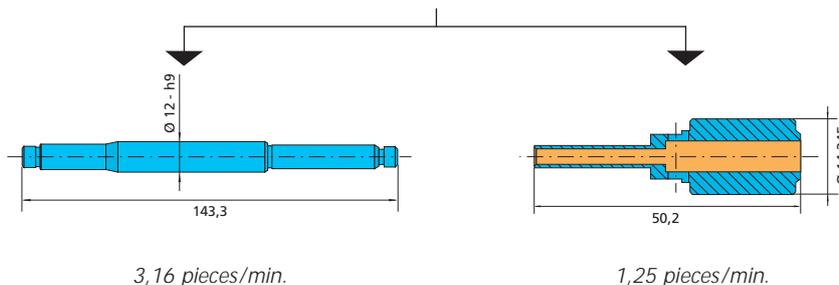
Once again, Tornos takes up the challenge of future, based on its invaluable experience of the

past and looking confidently towards the 21st century in the turned parts industry, from the simplest to the most complex workpieces. Discover DECO 26a – capacity 20 mm – a new revolution in high precision turning!



PNC-DECO and TB-DECO :
The next generation of modular NC, adaptable to all automatic turning applications.

PNC-DECO and TB-DECO :
Highest productivity rates with simple or complex precision turned parts.



DECO 26a

PNC-DECO PARALLEL NUMERIC CONTROL

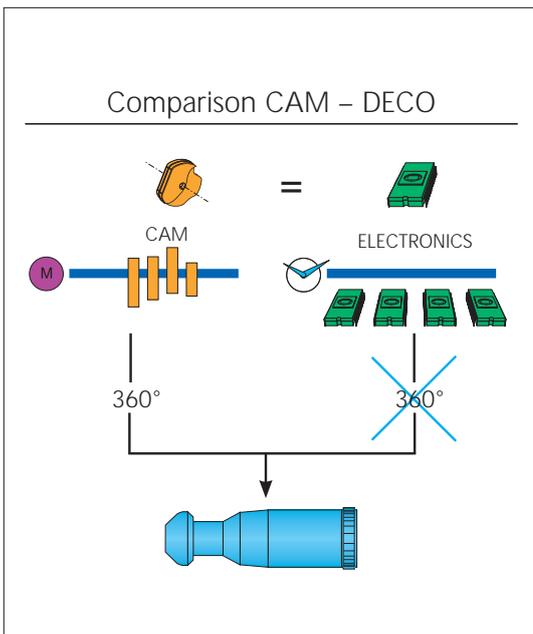
(concept patented by Tornos SA)



The only solution to match the high productivity of a camcontrolled automatic on an NC machine.

- Axes paths are calculated by data processing and stored on tables (virtual cams).
- A clock synchronizes the reading of these paths (virtual camshaft).
- Tool correctors are selected automatically and can be adjusted by the operator from the machine's control panel.

This type of control, similar to all DECO, assures maximum reduction of non productive time. Numerous positive experiences with smaller diameters have clearly proved the relevance of this concept. Do not hesitate to ask for detailed productivity figures.



Basic principles:

The cams are replaced by a stored calculation, so that the physical angular limits of 360 degrees are eliminated.

The measuring unit of the virtual cam is the millisecond, not the degree.

The total time of an operation corresponds to the contour of the cam i.e. theoretically an infinite number of degrees!

In addition with this electronic control you can manually feed new setups just as on a conventional cam-controlled machine (MPG or electronic handwheel function).

All the advantages of both cam control and numerical control perfectly match the present trend to reduce delivery times through versatility, productivity and constant quality improvement.



KINEMATICS

A machine suitable for every application, from the simplest to the most complex

To offer the ultimate high-performance machine, which can easily be adapted to meet customer requirements, DECO 26a is fitted with the modular system of tool interchangeability, which is already operational on the DECO 20a. Coupled to a presetter, these are the ideal method for saving time.

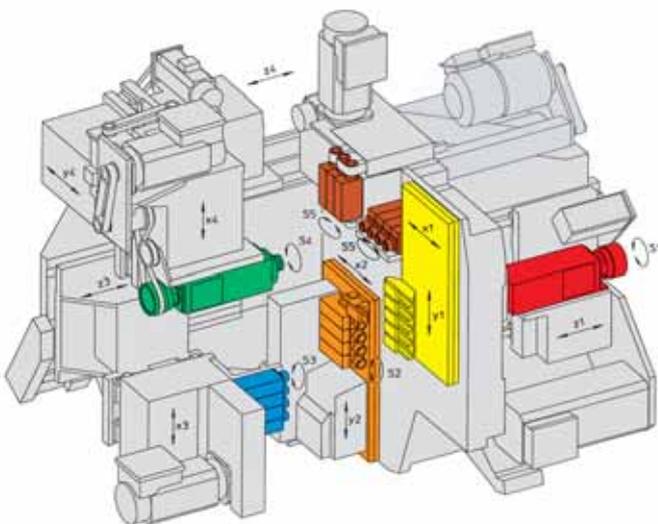
The highly equipped machine comprises 10 axes with independent counter-spindle and end unit attachment, as well as 21 tools, of which 15 are turning. In addition C1 axes (spindle) and C4 axes (counter-spindle) can be added which further enhance its potential.

A fully interchangeable tool system

The interchangeable and modular tool system is very user-friendly.

Tools	Turning toolholder	Revolving spindle unit	Stationary spindle unit
For use on platen 1	X	–	–
For use on platen 2	X	X	–
For use on end attachment	X	X	X
For counter-operations	X	X	X

DECO 26a lathe and its 10 PNC axes



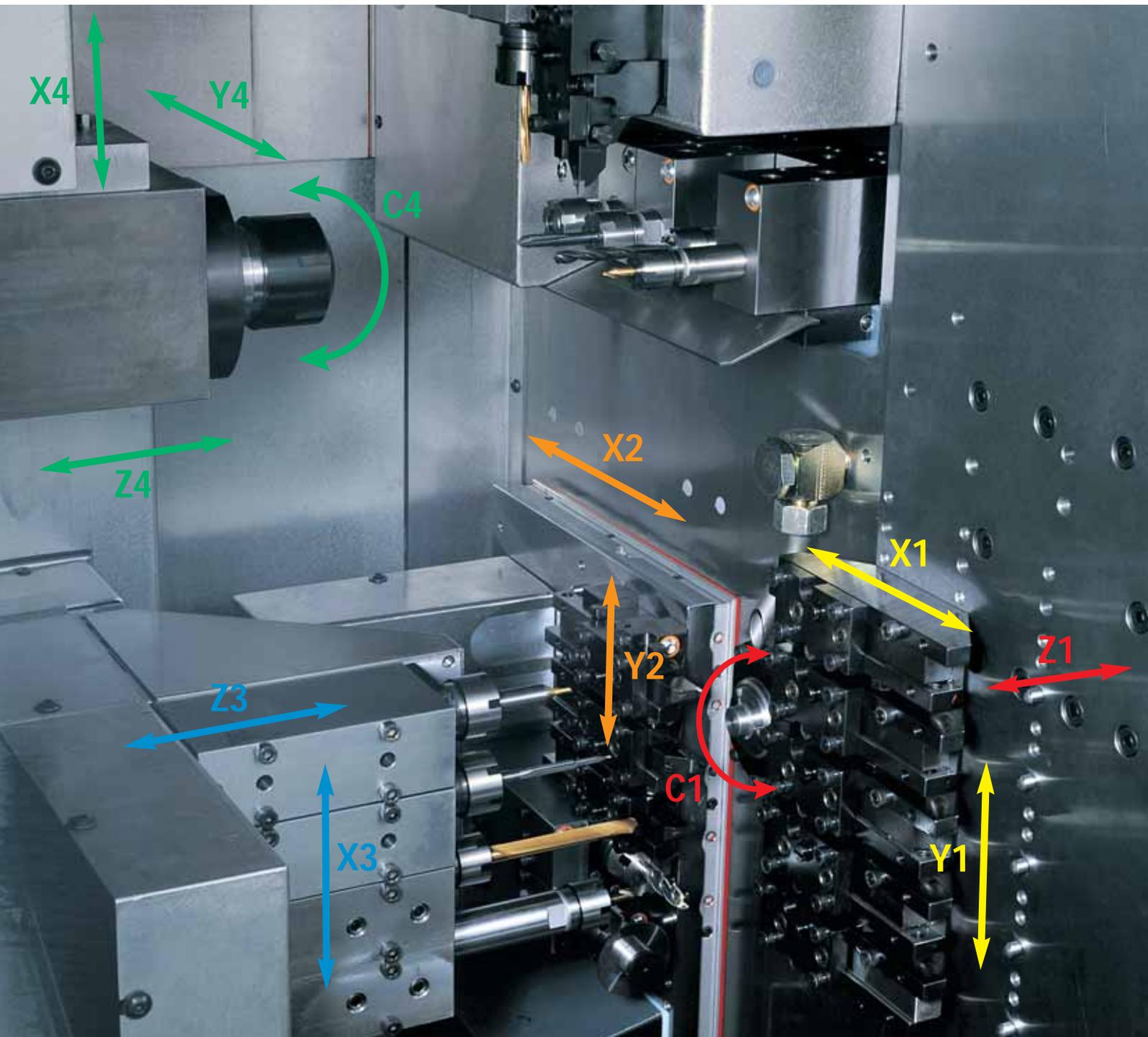
A machine suitable for every application, from the simplest to the most complex

- Z1** = Sliding headstock
- X1/Y1** = Platten 1
- X2/Y2** = Platten 2
- X3/Z3** = End working
- X4/Y4/Z4** = Counter spindle
- C1** = C-Axis sliding headstock (option)
- C4** = C-Axis counter spindle (option)
- S1** = Main spindle
- S2** = Live guidebush spindle
- S3** = Live end attachment spindle (option)
- S4** = Counter spindle
- S5** = Live counter operation spindle (cross and length wise) (option)

10 axes with end attachment and counter spindle.
DECO 26a also exists in version 8 axis with counter spindle.

KINEMATICS

A machine suitable for every application, from the simplest to the most complex



KINEMATICS

Maximum modularity

TORNOS guarantees an excellent machine configuration to fit our customers needs. Optimal machining conditions are offered by the machine's ergonomics and simplicity; with good visibility of the machining area. The unique features of the numerical control permit the following operations with the high productivity of a cam controlled machine :

- Turning with two tools at the same time, the tools being separately interpolated. Rough turning and finishing in the same operation.
- Cross operations interpolated with 4 driven spindles and Y-axis for cross-milling, eccentric drilling, slotting, etc.
- Polygon milling of flats or contours at the guide-bush (rotation speed synchronized).
- End attachment (2 numerical axes) working independently with four fixed or driven spindles.
- Threading and tapping operations by the differential threading principle, without any loss of productivity.
- Simultaneous turning and drilling (with optimised programmed speeds and feeds).
- An independent pickoff spindle with 3 numerical axes, allowing the centering of the working positions, the availability of 7 counter-operations positions, the optimization of the counter-operations (100% in hidden time), the linear and circular interpolation on 2 or 3 PNC axes for operations like turning, threading, milling, milling with axis C, increases the range of possibilities offered by DECO 26a.



Presetter



Unit with revolving drilling / milling spindle for collets ESX 25



Triple toolholder for end boring for commercial tooling

KINEMATICS

Possibility to machine with four tools simultaneously

- Main spindle and opposite spindle have programmable spindle positioning for all kinds of milling operations or other machining requests.
- Optimized management of feeds and speeds (no excessive efforts on material). Tools enter the material at the ideal moment, no waiting time.
- C-axis function at main and opposite spindle. Permanent indexing will permit to produce very specific shapes.
- Cross operations at the guidebush with four revolving spindles and Y axis enabling e.g. cross milling, off centre drilling, slotting or generating of gear teeth.
- Milling of inner / outer threads by whirling (applications in medicine and dentistry).
- Milling of threads by interpolation of 3 axes (including cross tapping).
- Milling in polar co-ordinates (function Transmit).

- Devices for the machining of long workpieces.
- Device for deep drilling with high pressure 140 bar.
- **Maximum modularity.**
- **Possibility to machine with four tools simultaneously.**

Each of these characteristics linked to the basic design offer :

- Powerful and efficient motor drives
- Outstanding thermal stability
- Large swarf bins
- A continuously adjustable coolant flow
- Clamping of the headstock and counter operation with variable adjustment make the DECO 26a a very productive tool.



Radial polygon milling attachment, max. rotation speed 8000 RPM (to mount in position T25)



Generating milling attachment for gears with length profile, mounting in position T25

AUTOMATIC BAR LOADERS

The best way of benefiting from all the power provided by the DECO 26a

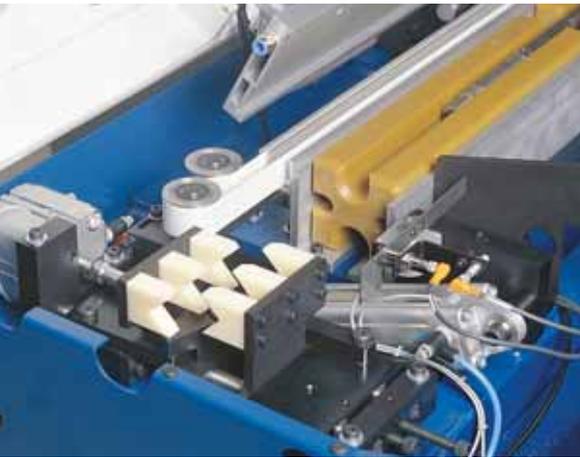
The total DECO solution includes peripherals specially developed for the lathe which guarantee perfect total compatibility.

The performance of the DECO 26a is increased by the auxiliary equipment.



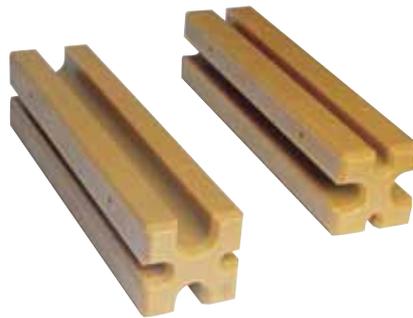
MAIN FEATURES

ROBOBAR SBF-532



ROBOBAR SBF-532

- Reduced space requirement.
- Optimum integration.
- Guaranteed bar guide.
- Machine incorporated control.
- Easy handling and programming.
- Joint development.
- Only one partner for machine and bar feeder.



TECHNICAL CHARACTERISTICS

SLIDING HEADSTOCK (axis Z1) (+C1 as option)		DECO 26a
Max bar diameters	mm	Ø 26 (32)
Max length of workpiece varies with guide bush (single feed)	mm	240
Programmable spindle speed	rpm	100 - 8000
Spindle index increments	degree	0,1
Max output of motor kW	kW	5,5 (7,5)

MAIN SPINDLE (X1/Y1) (X2/Y2)		
Max number of tools (stationary or revolving)		2 x 5
Tool section	mm	16 x 16
Max number of cross drills, cross milling cutters		4
Programmable rotation speeds	rpm	100 - 8000
Max output of motor kW	kW	1,5 (2,2)

END ATTACHMENT (COMBINED ATTACHMENT) (X3/Y3)		
Max number of end tools (stationary or revolving)		4
Spindle speeds	rpm	100 - 6000
Max output of motor kW	kW	1,5 (2,2)

COUNTER SPINDLE AND COUNTER OPERATIONS (X4/Y4/Z4) (+ C4 as option)		
Max clamping diameter	mm	26 (32)
Max workpiece length	mm	240
Programmable spindle speed	rpm	100 - 6000
Spindle index increments	degree	0,1
Max output of motor kW	kW	1,1 (3,7)
Max number of counter operations		7
Fixed and driven spindles		7
Programmable spindle speeds	rpm	100 - 8000
Max output of motor kW	kW	1,5 (2,2)

PARALLEL NUMERICAL CONTROL PNC – DECO		
Number of simultaneous axes		all axes
Number of interpolated axes		all axes

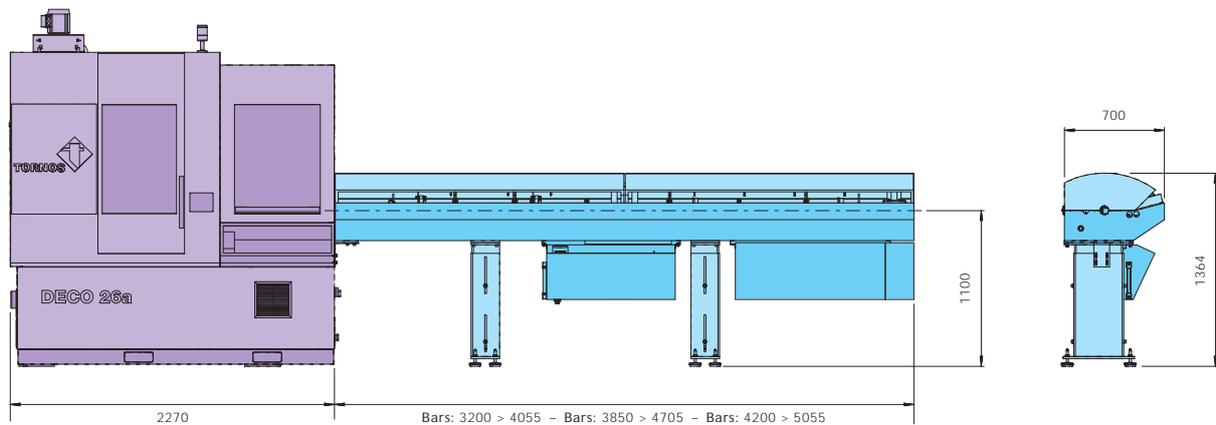
Conforms to the European CE/CEM safety standards

GENERAL CHARACTERISTICS

GENERAL CHARACTERISTICS

Max length	mm	2270
Max width	mm	1650
Max height	mm	2200 (2500)
Height at spindle center	mm	1100
Weight	kg	3400
Coolant capacity	litres	200
Output of adjustable pump	litres/min	9-59
Swarf tray capacity	litres	130
Installed power	kVA	14
Pressure of pneumatic unit	bars/PSI	6/87
Ambient working temperature	°C	5-35
Paint grey RAL 7035 and blue RAL 5013		
EC/CEM certificate		

DECO 26 A + SBF-532



NUMERICAL CONTROL

NUMERICAL CONTROL AND PROGRAMMING SOFTWARE

Type of control	PNC-DECO
Programming software	TB-DECO
Encoder Axes Motor	serial, absolute
Motor type (axes and spindles)	synchron, AC
Max number of axes	10 (12)
Designation of the axes	Z1 / X1 - Y1 / X2 - Y2 / X3 - Z3 / X4 - Z4 - Y4 (C1/C4 optional)
Designation of the spindles motors	S1 - S2 - S3 - S4 - S5
Min incrementation of program	1 μ
Min resolution of axes	0.1 μ
Number of tool correctors	31 per axis
Override for spindles and axes	0-120 %
Computation of real production time	
Graphic simulation of program	
Programming language on TB-DECO	ISO
Function Transmit	

TB-DECO SOFTWARE PROGRAMMING LANGUAGE

Management of tool offsets
Chamfering functions
Cutter compensation
Management of origin offsets
Function "lag" and "differential"
Spindle synchronization
Synchroneous feeds (mm/rev)
Thread chasing with constant, increasing, decreasing thread
Polygon milling in the guide-bush
Programming in Inch mode
Operations with C axis

THE EFFICIENT AND ECONOMIC SOLUTION FOR MANUFACTURING PARTS OF MODERATE COMPLEXITY

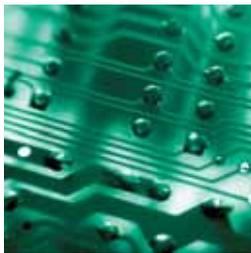
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Medical



Electronics



Watchmaking & Micromechanics



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