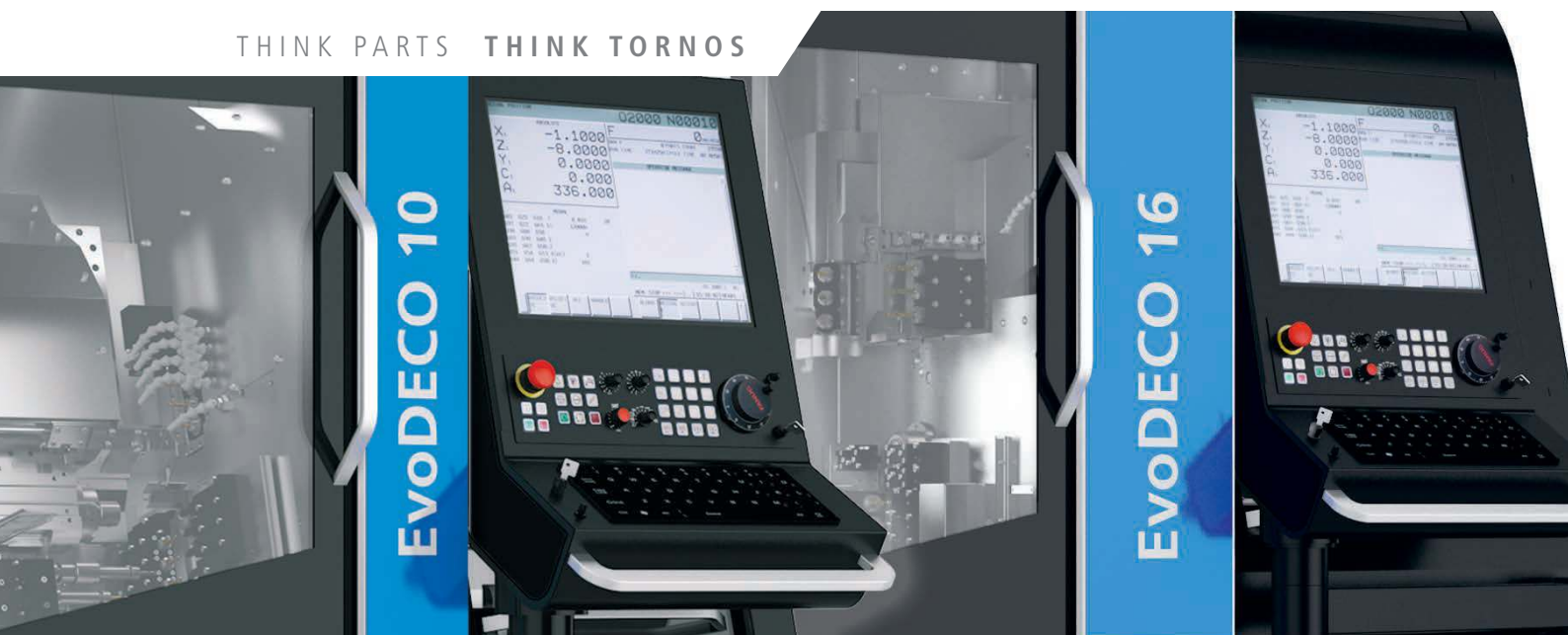


THINK PARTS THINK TORNOS



EvoDECO 10 / EvoDECO 16

For bars with diameters of 1 to 16 mm

# THE MOST EFFICIENT MACHINES ON THE MARKET

EvoDECO 10 and EvoDECO 16, machining solutions with exceptional flexibility.



## **Productivity**

- Up to 4 completely independent tool systems.
- Up to 10 linear axes and two C axes which are perfectly interpolable.
- Ultra-dynamic powered spindles with synchronous motors.

## **Performance**

- Up to 27 tools including 15 rotating tools (EvoDECO 16/10).
- Option to work without guide bush (EvoDECO 16 only).
- Wide selection of devices and peripherals.
- Continuous temperature stabilisation.
- Motor spindles offer high output and torque.
- B positioning axis in counter operations (EvoDECO 16).

## EvoDECO 10 / EvoDECO 16



### **Accessibility**

- Simplified programming thanks to the TB-DECO software or standard ISO language.
- Huge machining area.
- Integration of peripherals.
- Ergonomics designed with the operator in mind.
- Numerical Y41 setting axis (EvoDECO 10).

### **Autonomy**

- Excellent removal of swarf and cutting oil.
- Great machining autonomy without human intervention.
- Centralised lubrication.
- Integrated Tornos bar feeder.

# CUTTING EDGE TECHNOLOGY



## **B positioning axis for greater productivity**

- Three motorised machining positions with an optional fixed 4th position available.
- Even more complex parts can be produced.
- Reduced setup time.
- Improved precision and surface finish.
- 0-90° indexing.
- 0.001° resolution.

## **New motorspindle technology**

- Identical spindle and counter spindle with synchronous motors.
- Integrated cooling system.
- Increase in power and torque on the main spindle and the counter spindle.
- Reduction in downtime (indexing, acceleration, deceleration), 0 to 14,000 rpm in 0.9 seconds (EvoDECO 10).
- Elimination of noise and reduction in maintenance.
- Double coned collets on EvoDeco 16 (optional).

# HIGH PRECISION



Brass  
Outer diameter: Ø 13 mm  
Workpiece length: 3 mm



Steel  
Outer diameter: Ø 2 mm  
Workpiece length: 2 mm



Brass  
Outer diameter: Ø 9 mm  
Workpiece length: 1.5 mm



Cobalt Chrome  
Outer diameter: Ø 5 mm  
Workpiece length: 5.1 mm



Titanium  
Outer diameter: Ø 4.5 mm  
Workpiece length: 8.26 mm



Brass  
Outer diameter: Ø 6 mm  
Workpiece length: 40 mm



Titanium  
Outer diameter: Ø 12 mm  
Workpiece length: 30 mm



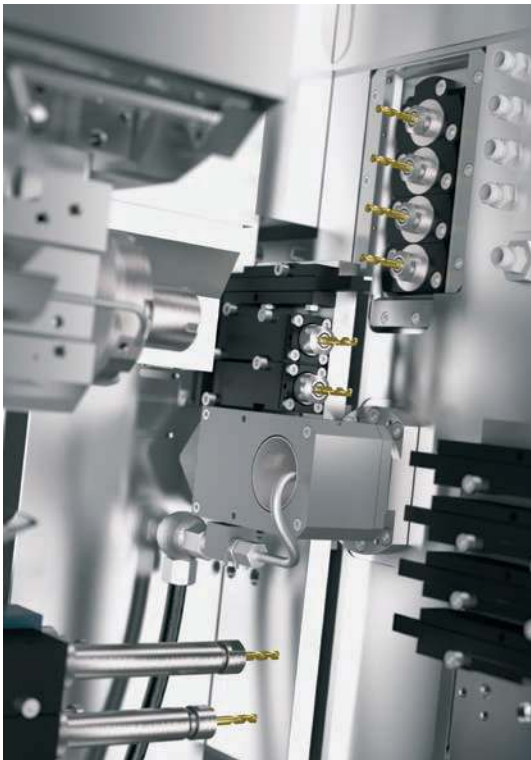
Titanium  
Outer diameter: Ø 7.1 mm  
Workpiece length: 34 mm



Stainless steel  
Outer diameter: Ø 9.3 mm  
Workpiece length: 110 mm

# EQUIPMENT

The choice of tool holder system has been made with a view to achieving complete versatility and a very high level of flexibility. All types of tool holder are equipped with a quick change system and adapted for use with preset tooling. EvoDECO machines are capable of resolving any machining issue, their possibilities are endless! For further information, please contact your nearest Tornos representative.



EvoDECO 10

## **Thread whirling**

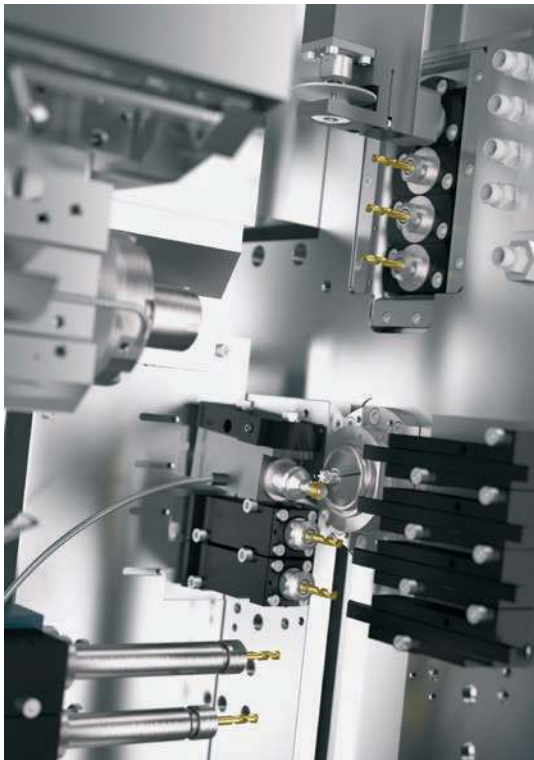
As it was invented by Tornos, thread whirling is one of our specialties and there are no aspects we do not understand. Whether single, double or for main or secondary operation, we will find a solution for adding a thread to your parts.



EvoDECO 10

## **Polygon operation**

Whether it is tulip-shaped polygon operation, thread milling or classic polygon operation, let us deal with your challenges.



EvoDECO 10

## **Gear hobbing**

EvoDECO machines are also specialised in hobbing operations. To meet the needs of industries like micro mechanics and



EvoDECO 10

watchmaking, EvoDECO10 can be equipped with up to 3 hobbing devices.

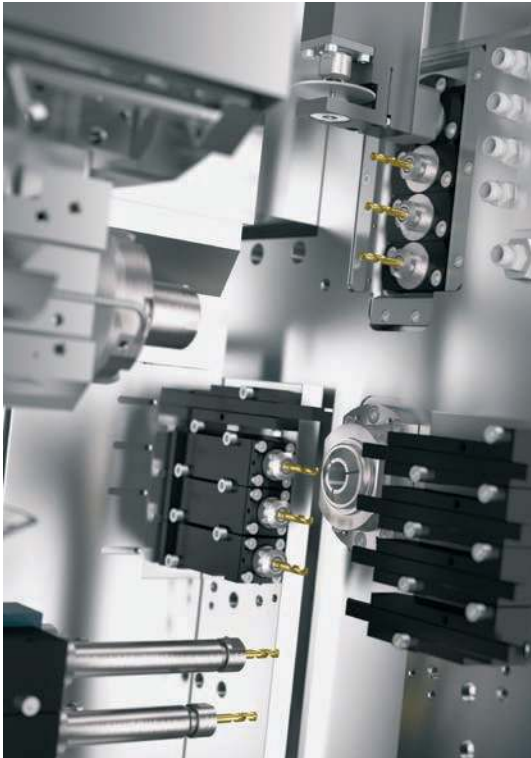


EvoDECO 10 / EvoDECO 16

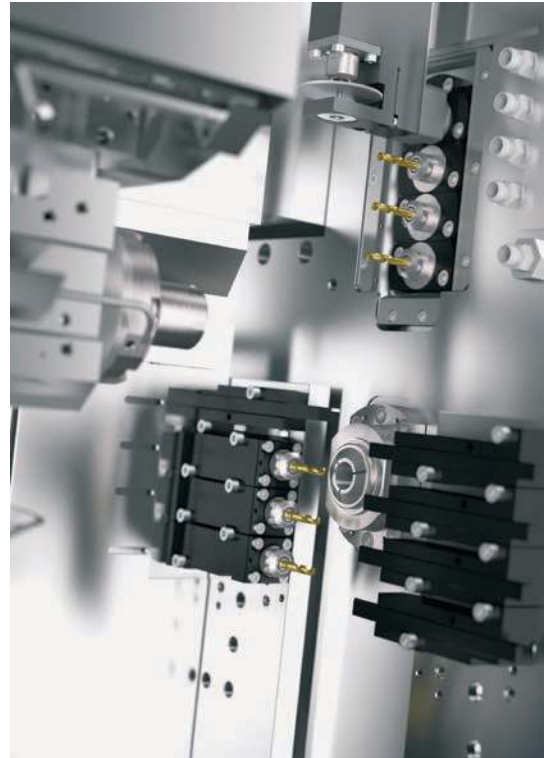
## **B axis**

The EvoDECO is the master in machining dental implants and other awkward shapes. These types of machining can be performed in main or secondary operation modes. As an optional extra, EvoDECO 16 can be equipped with a B axis, which substantially increases the production capabilities of the machine.

# EvoDECO 10



EvoDECO 10/10: 10-axis kinematics



EvoDECO 10/8: 8-axis kinematics

**To better suit your needs, EvoDECO 10 and EvoDECO 16 are also available in two versions equipped with 8 or 10 linear axes.**

The 10-axis version is equipped with a combined unit (X31/Z31) allowing frontal operations to be performed with ease. The combined unit proves indispensable for deep drilling operations. It also allows you to operate in differential mode (stroke progression).

- EvoDECO 10/8: 8 axes with independent counter spindle, 19 tool positions including 7 rotating positions.
- EvoDECO 10/10: 10 axes with independent counter spindle and combined unit, 22 tool positions including 10 rotating positions.
- All versions of EvoDECO 10 have C11 (spindle) and C41 (counter spindle) axes fitted as standard.





EvoDECO 16/10: 10-axis kinematics



EvoDECO 16/8: 8-axis kinematics

**EvoDECO 16 is also available in two versions.**

- EvoDECO 16/8: 8 axes with independent counter spindle, 23 tool positions including 9 rotating positions.
- EvoDECO 16/10: 10 axes with independent counter spindle and combined unit, 27 tool positions including 15 rotating positions.

On all versions, the C1 (spindle) and C4 (counter spindle) axes, as well as the optional B positioning axis for secondary operation, further broaden the capabilities of the machine.

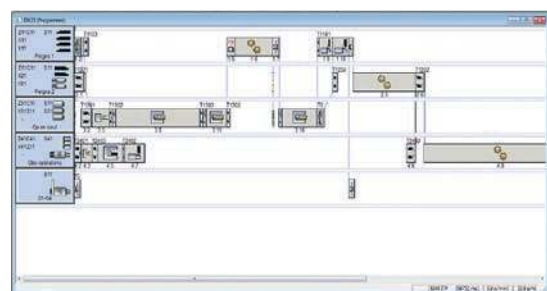
# PROGRAMMING: TB-DECO

EvoDECO can now be used with two programming systems: TB-DECO or TISIS. These two systems enable you to exploit the machine's full potential.

## Programming

TB-DECO programming software can be used to create programs for all single-spindle products in the EvoDECO family.

- Easy to program, with icons for productive and non-productive operations.
- Tool library.
- Graphic synchronisation of simultaneous operations.
- Calculation of actual machining time (Gantt chart).
- Check the program and tool trajectories using graphic simulation.
- Free update.
- Tornos Software Hotline.



## Integrated PC

- Modify programs on the machine.
- Service instructions available on the machine.
- Remote maintenance.
- Possibility of monitoring various peripherals.
- Wide colour touchscreen.
- USB.

# TISIS: PROGRAMMING AND COMMUNICATING WITH YOUR EvoDECO MACHINE

In addition to TB-DECO and its highly userfriendly graphic management, Tornos now offers the option of programming EvoDECO machines in standard ISO. This option, which gives direct access to the machine's numerical control, proves particularly practical when wanting to create complex interfaces between the machine and external peripherals such as measurement systems.

Interfacing of CAM systems is also simplified for customers using this system. The machine's 4 tool systems are synchronised via the Tornos TISIS software. This software allows the 4 channels to be displayed, thereby simplifying programming. Management of the machine and its peripherals is still highly intuitive thanks to the Tornos machine interface (TMI).



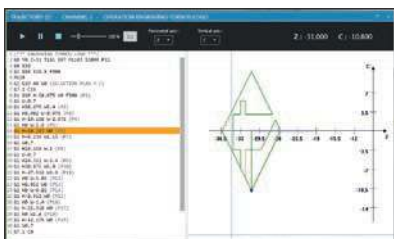
Program your EvoDECO



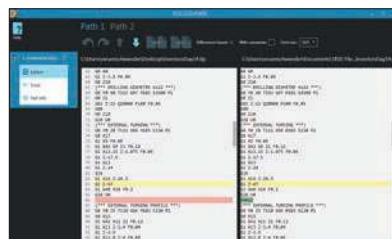
Gantt Diagram



ISO Editor Assistant



2D Simulation of the Tool Path



Part File Compare



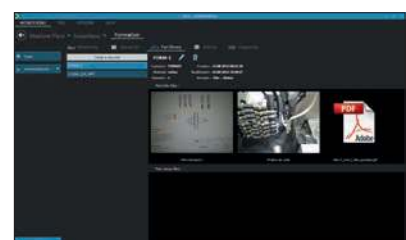
Tools Catalogue



Virtual Set-up



Monitor your EvoDECO



Build your Knowledge Base

\* Requires the connectivity pack

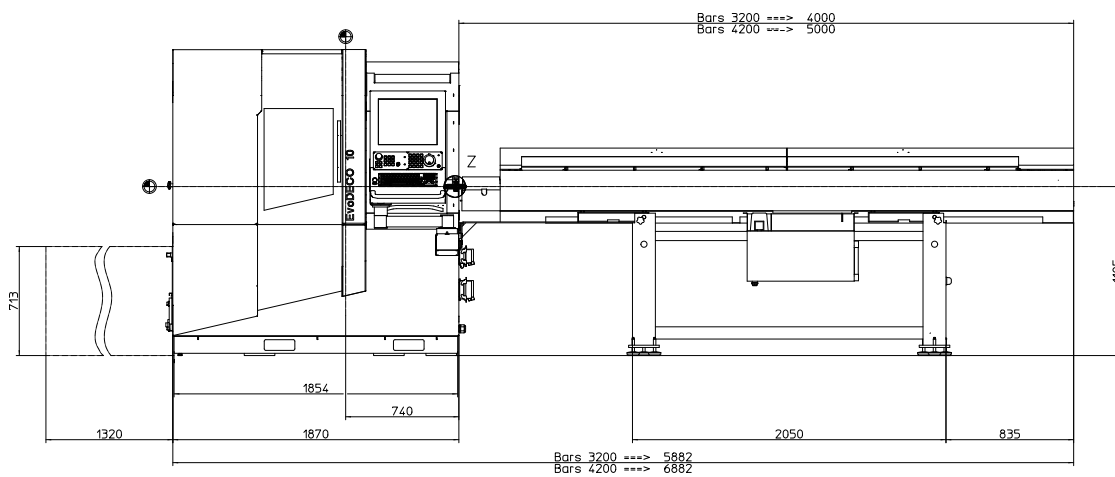


# EvoDECO 10

TECHNICAL SPECIFICATIONS	EvoDECO 10/10		EvoDECO 10/8	
		10 linear axes + 2 C axes 4 independent tool systems		8 linear axes + 2 C axes 3 independent tool systems
<b>Main spindle (Z11/S11/C11)</b>				
Max. bar capacity	mm	10		10
Standard workpiece length with rotating guide bush	mm	100		100
Spindle speed of rotation	rpm	0 to 14 000		0 to 14 000
Spindle output	kW	6,5 / 10,1		6,5 / 10,1
Max. constant torque	Nm	4,8 / 6,5		4,8 / 6,5
Spindle stoppage time (10,000 rpm to 0)	sec	0,5		0,5
Mild steel drilling capacity	mm	8		8
Mild steel tapping capacity		M6		M6
<b>Guide bush holder (X11/Y11/S21) (X21/Y21)</b>				
Number of tool positions on guide bush		8 / 2 x 4		8 / 2 x 4
Cross section of rotating tools		8 x 8		8 x 8
Positions for rotating tools		4		4
Rotating tools speed of rotation	rpm	100 to 12 000		100 to 12 000
Rotating tools output	kW	1,1		1,1
Steel drilling / rotating tool capacity	mm	4		4
Rotating tool / steel tapping		M4		M4
<b>End attachment (X31/Y31/S31)</b>				
Number of tool positions		3		-
Positions for rotating tools		3		-
Speed of rotation of rotating tools	rpm	100 to 12 000		-
Output of rotating tools	kW	1,1		-
Steel drilling / rotating tool capacity	mm	4		-
Rotating tool / steel tapping capacity		M4		-
<b>Counter spindle (Z41/Y41/S41/C41)</b>				
Max. bar capacity	mm	10		10
Insertion length of workpiece into spindle	mm	100		100
Spindle speed of rotation	rpm	0 to 14 000		0 to 14 000
Spindle output	kW	5,1 / 7		5,1 / 7
Max. constant torque	Nm	3,4 / 4,8		3,4 / 4,8
Stoppage time (10,000 rpm to 0)	sec	0,5		0,5
Mild steel drilling capacity	mm	6		6
Mild steel tapping capacity		M6		M6
<b>Secondary operation (X41/S42)</b>				
Number of tool positions		4		4
Positions for rotating tools		4		4
Rotating tools speed of rotation	rpm	100 to 9 000		100 to 9 000
Rotating tools output	kW	1,1		1,1
Steel drilling / rotating tool capacity	mm	4		4
Rotating tool / steel tapping capacity		M4		M4
Max. total number of tools		22		19
Distribution of tool operations / secondary operations		18 / 4		15 / 4

# EvoDECO 10

Basic machine equipment	EvoDECO 10/10	EvoDECO 10/8
Rotating guide bush	X	X
S21 rear platen rotating tool motor	X	X
S31 end attachment rotating tool motor	X	-
S42 rotating tool motor in secondary operation	X	X
C11 + C41 axes	X	X
Interpolation in polar coordinates	X	X
Fine tuning of the clamping force on S41 counter spindle	X	X
Pneumatic ejection of workpiece + oil cleaning of collet	X	X
Automatic centralised lubrication cycle	X	X
Beacon (4 colours)	X	X
Cooling pump with self-cleaning filter	X	X
Timer for preheating cutting oil	X	X
Fire extinguisher interface	X	X
TB DECO ADV programming software	X	X
TISIS programming software	option	option



## GENERAL SPECIFICATIONS

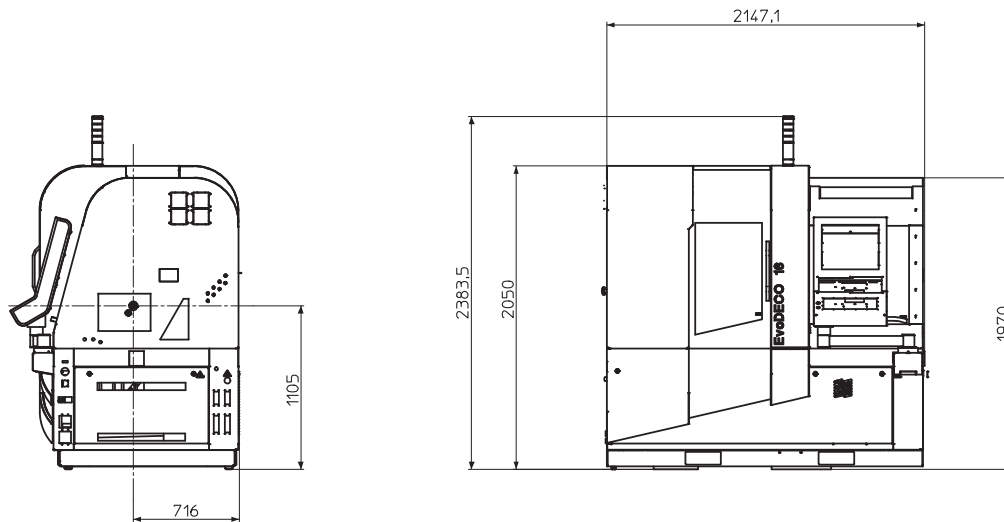
Max. length	mm	1870
Max. width	mm	1140
Max. height	mm	1850
Weight	kg	1650
Cutting oil pan capacity	l	200
Cooling pump output	kW	0,75
Max. pressure	bar	5
Cooling pump output	l/min	27,6
Colours : grey RAL 9006, black RAL 9011		
CE / CEM certified		

# EvoDECO 16

TECHNICAL SPECIFICATIONS	EvoDECO 16/10		EvoDECO 16/8	
		10 linear axes + 2 C axes 4 independent tool systems		8 linear axes + 2 C axes 3 independent tool systems
<b>Main spindle (Z11/S11/C11)</b>				
Max. bar capacity	mm	16		16
Standard workpiece length with rotating guide bush	mm	180		180
Spindle speed of rotation	rpm	0 to 12 000		0 to 12 000
Spindle output	kW	9,8/12		9,8/12
Max. constant torque	Nm	12,1/15,8		12,1/15,8
Spindle stoppage time (8,000 rpm to 0)	sec	0,7		0,7
Mild steel drilling capacity	mm	10		10
Mild steel tapping capacity		M10		M10
<b>Guide bush holder (X11/Y11/S21) (X21/Y21/S12)</b>				
Number of tool positions on guide bush		10/2 x 5		10/2 x 5
Cross section of turning tools		12 x 12/12,7 x 12,7		12 x 12/12,7 x 12,7
Positions for rotating tools		6/2 x 3		6/2 x 3
Rotating tools speed of rotation	rpm	100 to 8 000		100 to 8 000
Output of rotating tools	kW	0,55/1,1		0,55/1,1
Steel drilling / rotating tool capacity	mm	8		8
Rotating tool / steel tapping capacity		M6		M6
<b>End attachment (X31/Y31/S31)</b>				
Number of tool positions		4		-
Positions for rotating tools		3		-
Speed of rotation of rotating tools	rpm	100 to 8 000		-
Output of rotating tools	kW	0,55/1,1		-
Steel drilling / rotating tool capacity	mm	8		-
Rotating tool / steel tapping capacity		M6		-
<b>Counter spindle (Z41/Y41/S41/C41)</b>				
Max. bar capacity	mm	16		16
Insertion length of workpiece into spindle	mm	150		150
Spindle speed of rotation	rpm	0 to 12 000		0 to 12 000
Spindle output	kW	9,8/12		9,8/12
Max. constant torque	Nm	12,1/15,8		12,1/15,8
Stoppage time (8,000 rpm to 0)	sec	0,7		0,7
Mild steel drilling capacity	mm	10		10
Mild steel tapping capacity		M10		M10
<b>Secondary operation (X41/S42)</b>				
Number of tool positions		6		6
Positions for rotating tools		6		6
Rotating tools speed of rotation	rpm	100 to 8 000		100 to 8 000
Output of rotating tools	kW	1,5/2,2		1,5/2,2
Steel drilling / rotating tool capacity	mm	8		8
Rotating tool / steel tapping capacity		M6		M6
Max. total number of tools		27		22
Distribution of tool operations / secondary operations		19/8		14/8
<b>B axis positioning (option) in counter operations</b>				
Number of rotating tools		3		3
Max. RPM of spindles	rpm	0 to 8 000		0 to 8 000
Power at 100% / 40%	kW	1,5/2,2		1,5/2,2
Torque	Nm	4,77/7		4,77/7
Type of collet		ER/ESX 12		ER/ESX 12
Max. clamping capacity	mm	7		7
Min. programmable increment	Degree	0 to 90		0 to 90
B axis resolution	Degree	0,001		0,001

# EvoDECO 16

Basic machine equipment	EvoDECO 16/10	EvoDECO 16/8
Rotating guide bush	X	X
S21 rear platen rotating tool motor	X	X
S12 front platen rotating tool motor	X	X
S31 end attachment rotating tool motor	X	-
S42 rotating tool motor in secondary operation	X	X
C11 + C41 axes	X	X
Interpolation in polar coordinates	X	X
Fine tuning of the clamping force on S41 counter spindle	X	X
Pneumatic ejection of workpiece + oil cleaning of collet	X	X
Automatic centralised lubrication cycle	X	X
Beacon (4 colours)	X	X
Cooling pump with self-cleaning filter	X	X
Timer for preheating cutting oil	X	X
Fire extinguisher interface	X	X
TB DECO ADV programming software	X	X
TISIS programming software	option	option



## GENERAL SPECIFICATIONS

Max. length	mm	2150
Max. width	mm	1250
Max. height	mm	2050
Weight	kg	2700
Cutting oil pan capacity	l	200
Cooling pump output	kW	0,75
Max. pressure	bar	5
Cooling pump output	l / min	27,6
Colours : grey RAL 9006, black RAL 9011		
CE / CEM certified		

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