



THINK PARTS THINK TORNOS



## MULTISIGMA 8x24

Multispindle automatic lathe with parallel numerical control.

# MULTISIGMA 8x24

New market requirements...



Market requirements, especially in the automotive industry, are becoming more and more demanding. Quality and accuracy become more critical while part prices are expected to decrease. Traditionally, the manufacture of complex parts is performed over several separate operations. It starts with preliminary machining on a multi-spindle lathe and then finishes on a secondary machine. This process involves several handling operations that increases the risk of part damages and reduced precision caused by

several handling and clamping operations. The overall time and labour deployed is considerable and the cost of manufacture increased. To produce complex parts at a competitive price is a difficult undertaking. In order to contain labour costs and maintain required accuracies and finishes, the number of different processes must be kept to a minimum and an innovative technical solution must be found.



# PRESENTATION

...require new solutions:  
Tornos is presenting the MultiSigma 8x24

With the new MultiSigma 8x24 Tornos offers a complete and unique solution to produce complex parts in one set up.

Eight powerful and independent spindles allow the highest degree of flexibility whilst an integrated robot allows the unloading of parts into a pallet. TB-DECO programming software offers great comfort in programming. Combined with a vast array of options such as

up to eight independent frontal units, y-axis, multiple tool holder, PC control and remote diagnostics, the MultiSigma 8x24 is the machine of choice for highly demanding parts.

The legendary high precision, large working area provides accessibility and the bar loader and chip management system allow an overall, complete and high performing solution – all in one machine.

## **New, outstanding features:**

- 8 motorspindles with independent spindle speeds.
- Double back working operation and double cycle.
- Integrated palletizing.

## **Combine these with the benefits of the Tornos multispindle lathes...**

- High precision.
- Maximum flexibility.
- Common programming for single spindle and multispindle systems.
- High output.



# 8 MOTORIZED SPINDLES RUNNING AT INDEPENDENT SPEEDS

**Advantage:** Ideal cutting speed at all times !

The new MultiSigma 8x24 is supplied with the latest generation motorized spindles and is the most powerful machine in its category.

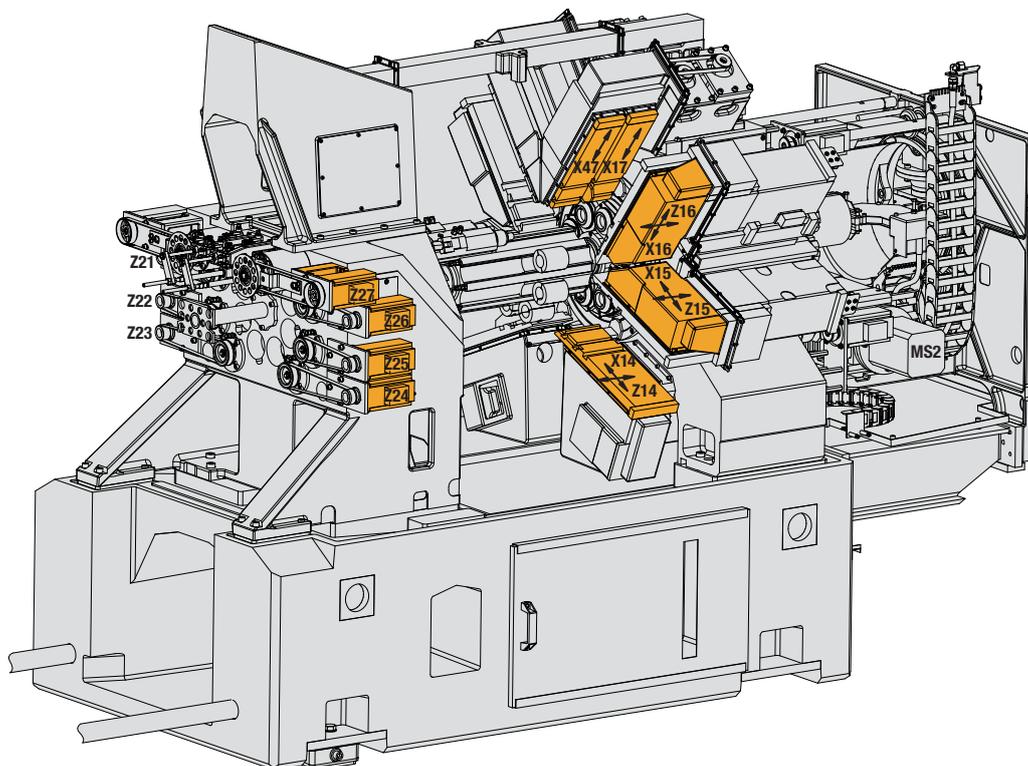
The MultiSigma 8x24 is equipped with the very powerful, well proven motorspindle technology already applied throughout the MultiAlpha line.

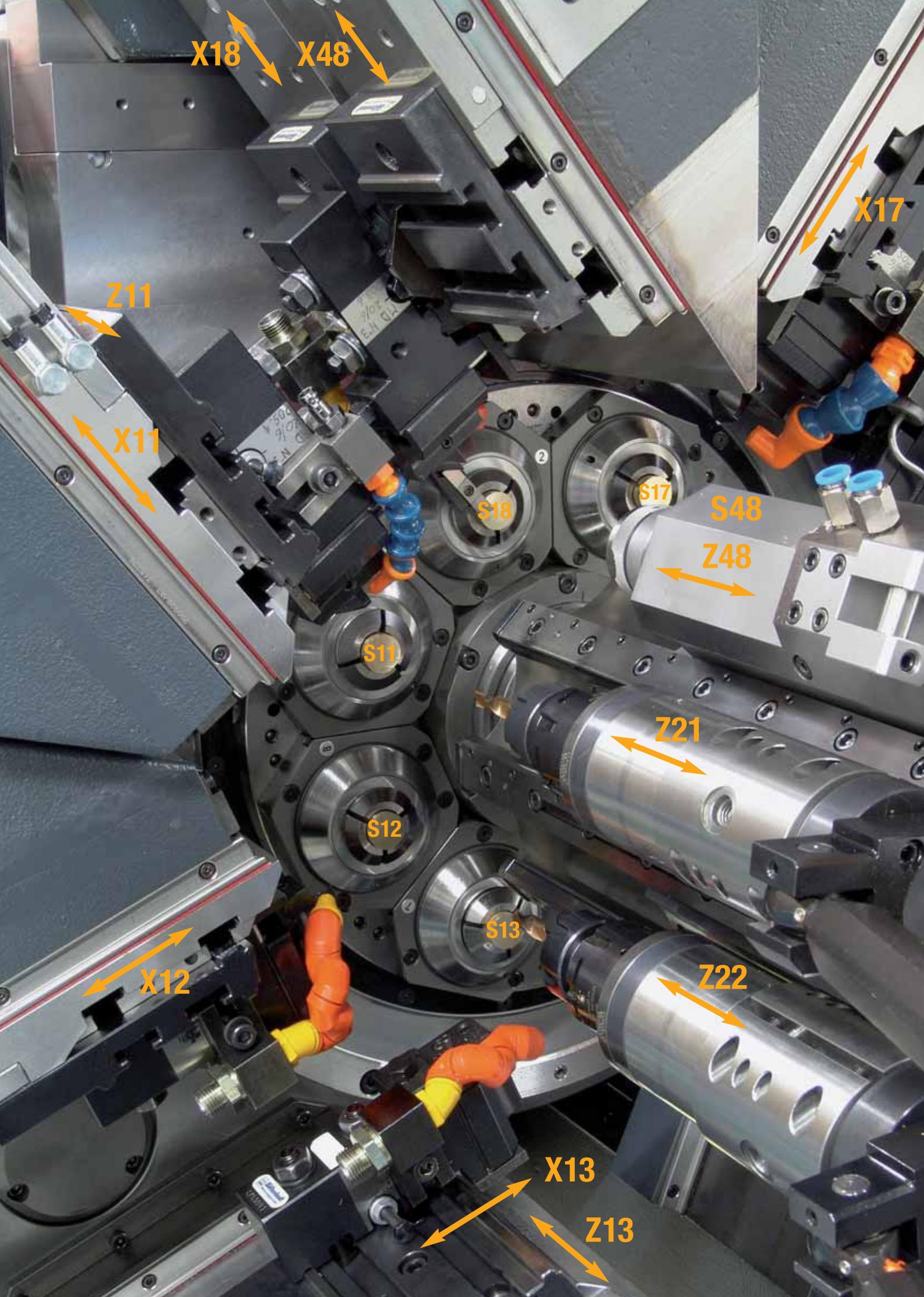
## Advantages

- Ideal cutting speed on each position.
- Stopping and positioning on each spindle.
- Maximum exploitation of new cutting tool technologies.
- Exceptional flexibility.
- Uncompromised productivity.

Each position can be used as a C-axis, meaning that all types of operation, such as milling or positioned cross drilling can be carried out at all times, with all spindles. The spindles can all be synchronised at an angle, meaning that positioned operations can be executed on several stations (e.g. drilling/ eccentric tapping).

This means that customers have a choice of using a machine that actually best meets their requirements. Where a company has a machine fleet, this would mean that it could deploy additional multispindle machines operating according to the same concept. The overriding aim is to use the most efficient machine in terms of cost and productivity, based on the parts being manufactured.





X18

X48

X17

Z11

X11

S18

S17

S48

Z48

S11

Z21

S12

S13

Z22

X12

X13

Z13

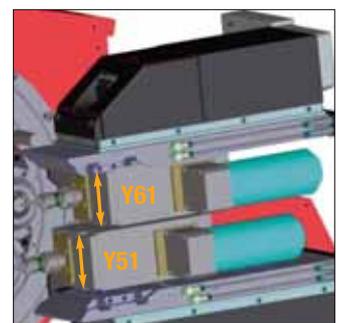
# DOUBLE BACK WORKING OPERATION AND DOUBLE CYCLE (2x4)

**Advantage :** To complete a back working operation rapidly

Depending on the back operation required the machine can be equipped with two back working stations with multiple tooling.

**Advantages :**

- More tools available for the back side (max. 2x2).
- Splitting the time for back working to reducing cycle time (dm2).
- Double productivity with twice as many cycles (2x4).



## 8 FRONTAL SPINDLES AND MANY MORE FEATURES

**Advantage :** Complex parts can be produced



The well proven concept with central sliding block allows the user to mount up to eight independent motor driven frontal spindles. The Y-axis enhances further the possibility for thread milling and grooving from the front side.

Many new features are available for mounting on the cross slides. A Y-axis on the cross slide is used to perform multiple off-center holes or oblong holes.

A multiple tool holder (turret) with 4 tools allows the user to perform four different operations or use sister tools for critical operations – all on one station. To increase performance and comfort, a PC control is available to program directly on the machine with all service instructions and videos available. Remote diagnostics are available to use with your internal network or connect to the Tornos service centre.

Applying the world-known know-how from our single spindle machine division for medical part production, the thread whirling technology has also been developed for the Tornos Multispindle machines.

### **New additional features**

- Up to 8 frontal units (fix or with independent, free programmable spindle speed).
- Y-axis for frontal operation (fix or rotating).
- Y-axis for cross slides.
- Multiple tool holder (4 tools).
- PC Control with remote access.
- Multiple thread whirling.
- Milling heads and HF drilling attachments.



# CONTROLLED AND PROGRAMMABLE PART UNLOADING

**Advantage :** Controlled part unloading



The increasing demand for parts with absolutely no marks has been taken care of with the controlled and programmable part unloading system. To fulfil exactly your requirements a variety of different systems are available.

- Cartesian system takes each part individually and outside the working envelope.
- A robot transports the part out of the working area into pallets, offering ideal conditions to perform further operations such as pre-cleaning, measuring, good/bad part selections.
- A part catcher.

Many leading manufacturers automate processes to improve quality output and reduce labour costs.

The MultiSigma 8x24 was specially developed to allow a full integration of a palletizing system with minimal floor space requirements. Very often, commercial palletization systems are limited at machine interface level and therefore have to be assembled to the side of the machine, which takes up a lot of space. To overcome this problem, Tornos located the integral palletization system between the machine and control cabinet thereby optimising integration and saving on space. Large pallets of 400 x 600 mm are incorporated as standard to enhance autonomous operation.

# INTEGRAL PALLETIZATION

**Advantage:** Easy to incorporate in a complete industrial process !



## **Advantages**

- Integral palletization in the machine.
- Reduced surface area.

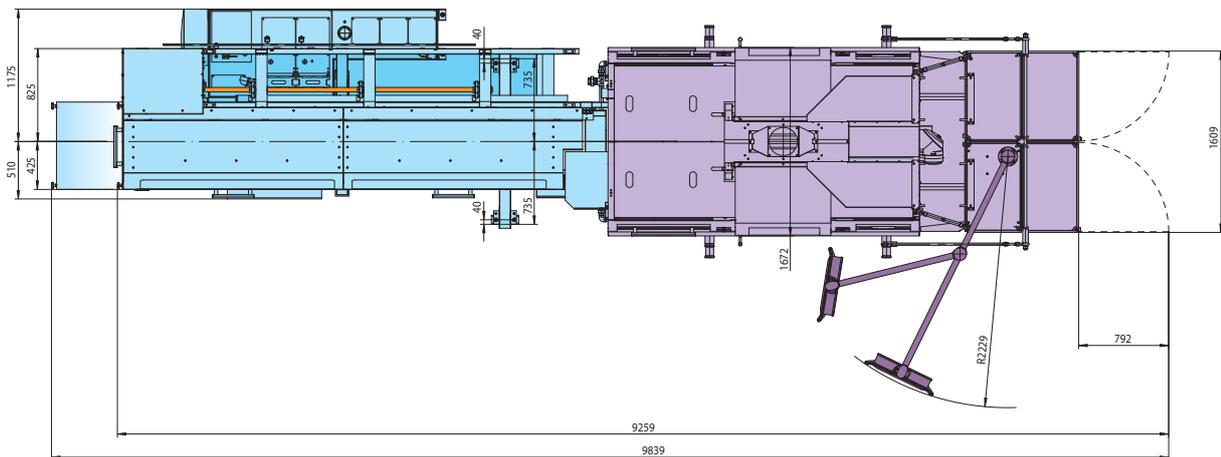
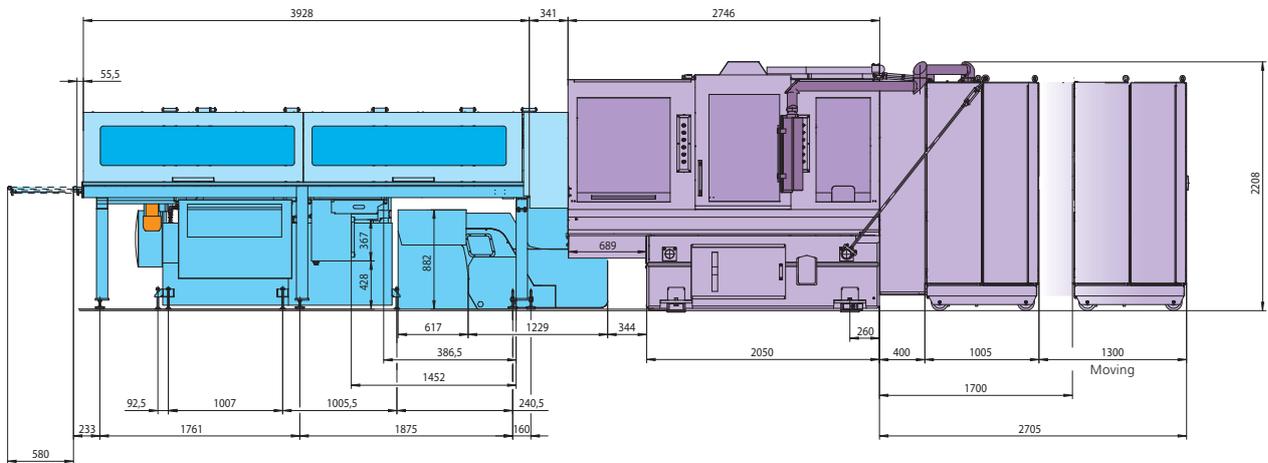
## **The general idea of palletization**

Once the parts are loaded onto pallets, they can pass directly to a secondary operation.

# MULTISIGMA 8x24

## Key benefits

- 8 motorspindles with independent spindle speeds.
- Controlled and programmable part unloading.
- Single cycle 1x8 or double cycle 2x4.
- Integrated palletizing.



## TECHNICAL SPECIFICATIONS

Weight (with oil)	kg	~ 10'000
Cutting oil tank capacity	l	1'500
Installed power	kVA	87
Pneumatic group pressure	bars	6

# TECHNICAL CHARACTERISTICS

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Bar capacity	mm	22 (25)
Max. length of part	mm	140 (90)

Max. speed of motorized spindles	rpm	8'000
Motorized spindle power	kW	11.2
Motorized spindle torque	Nm	17 (25)

Max. counter-spindle speed	rpm	8'000
Motor counter-spindle power	kW	6
Counter-spindle motor torque	Nm	7

Max. drilling motor speed	rpm	8'000
Drilling motor power	kW	6 (12)
Drilling motor torque	Nm	7 (14)

Number of linear axes		25
Number of rotary axes		9 (10)
Travel of crossing slide in X	mm	50
Travel of crossing slide in Z	mm	80
Travel of crossing slide in Y	mm	12
Travel of end unit in Z	mm	372
Cutting slide travel (X7, X8)	mm	65
Counter-spindle travel in Z	mm	330
Back-operation tool support travel	mm	65
No. of tools for back-operation		2 x 2 tools
Spindle cooling		Yes
Numeric control		Fanuc 30i
Programming system		TB-DECO

**TORNOS S.A.**

Rue Industrielle 111  
CH - 2740 Moutier  
Tel. +41 (0)32 494 44 44  
Fax +41 (0)32 494 49 03  
contact@tornos.com  
www.tornos.com

**TORNOS TECHNOLOGIES  
DEUTSCHLAND GmbH**

Karlsruher Str. 38  
D - 75179 Pforzheim  
Tel. +49 (0)7231 / 910 70  
Fax +49 (0)7231 / 910 750  
contact@tornos.de

**TORNOS TECHNOLOGIES  
FRANCE**

Boîte postale 330  
St-Pierre en Faucigny  
F - 74807 La Roche  
s / Foron Cedex  
Tel. +33 (0)4 50 038 333  
Fax +33 (0)4 50 038 907  
contact@tornos.fr

**TORNOS TECHNOLOGIES  
IBERICA**

Pol. Ind. El Congost  
Avda. St Julia, 206 Nave 8  
E - 08403 Granollers  
Tel. +34 93 846 59 43  
Fax +34 93 849 66 00  
commercial.tti@tornos.com

**TORNOS TECHNOLOGIES  
ITALIA SRL**

Via Cesare Pavese 21  
I - 20090 Opera / MI  
Tel. +39 02 57 68 15 01  
Fax +39 02 57 68 15 230  
contact@tornos.com

**TORNOS TECHNOLOGIES  
US CORPORATION**

840 Parkview Boulevard  
US - Lombard, IL 60148  
Tel. +1 203 775 4319  
Fax +1 203 775 4281  
info-us@tornos.com

**TORNOS TECHNOLOGIES  
UK LTD**

Tornos House  
Whitwick Business Park  
Coalville  
UK - Leicestershire LE67 4JQ  
Tel. +44 (0) 1530 513100  
Fax +44 (0) 1530 814212  
sales@tornos.co.uk

**TORNOS TECHNOLOGIES  
POLAND Sp. z o.o.**

Ul. Brukselska 44 lok. 21A  
PL - 03-973 Warszawa  
Poland  
Tel. +48 226 72 91 81  
Fax +48 226 16 55 81  
poland.contact@tornos.com

**TORNOS S.A. SHANGHAI  
REPRESENTATIVE OFFICE**

Hui Feng Creativity Garden  
Feng Yu Building, 1-2F  
No.239, Xitai Rd. XuHui District.  
CN - Shanghai 200232  
Tel. +86 21 6235 1235  
Fax +86 21 6235 1938  
china.contact@tornos.com

**TORNOS BEIJING OFFICE**

Rm.1706, Tower A  
Dongyu Office Building  
Jia #1 Shuguang Xili  
Chaoyang District  
CN - Beijing 100028  
Tel. +86 10 5979 8583  
Fax +86 10 5822 0483  
beijing.contact@tornos.com

**TORNOS TECHNOLOGIES  
ASIA LTD**

Unit 4, Ground Floor, Transport City  
Building  
1-7 Shing Wan Road  
Tai Wai, Shatin  
N.T., Hong Kong  
Tel. +852 2691 2633  
Fax +852 2691 2133  
asiapacific.contact@tornos.com

**TORNOS S.A. THAILAND  
REPRESENTATIVE OFFICE**

Flat 1B, The U.N. Residence  
27/28 Sukhumvit Soi 33  
Bangkok 10110  
Thailand  
Tel. +66 2 662 3908  
Fax +66 2 662 3910  
thailand.contact@tornos.com

**TORNOS TECHNOLOGIES ASIA LTD  
MALAYSIA**

**REPRESENTATIVE OFFICE**  
Suite 8.07, 8th Floor, MWE Plaza  
No. 8, Lebuhr Farquhar  
10200 Penang  
Malaysia  
Tel. +6 04 2630118 / 2635118  
Fax +6 04 2624118  
malaysia.contact@tornos.com

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