



THINK PARTS THINK TORNOS



AUTOMOTIVE

Proven solutions in the automotive field for over 40 years.



THE CAR: FOR SOME THE OBJECT OF DREAMS...



... and for others a functional item... but a necessity for all. The car industry represents a major challenge to all manufacturers of automatic lathes - an area Tornos has been specializing in for almost 40 years. The enormous progress achieved over the years in all aspects of vehicle safety and comfort is the result of the developments achieved in the automatic lathe sector.

The ever-growing precision, repetitiveness, just-in-time production and tight production flows place increasing pressure on all those involved in the logistics chain.

The car manufacturers created a network comprising numerous finely interlinked levels. The car manufacturers (OEM) work hand-in-hand with the integrators (T1) who in turn, work with the manufacturers (T2). This line cannot withstand any break, with the result that more and more long-term partnerships are being formed.

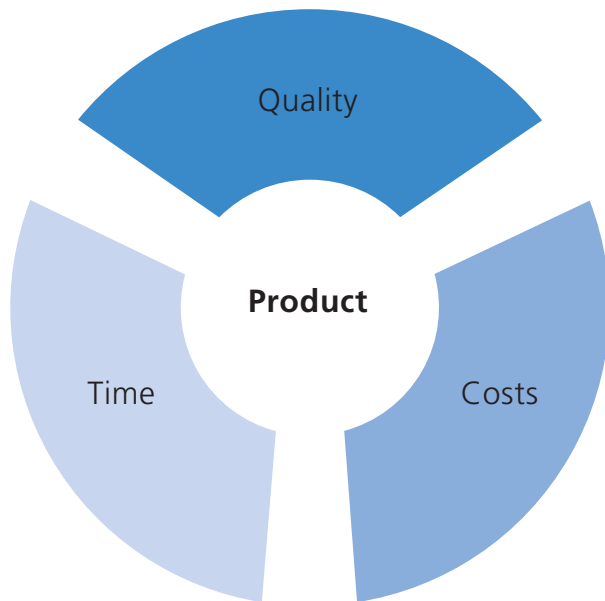
Tornos is the supplier of specialist, tried and tested solutions in this very demanding sector. We would like you to discover a little more.

Would you like further information ?

Please contact your normal Tornos agent.

TECHNOLOGY SERVING THE CAR

We work out the solutions enabling you to fulfill your requirements



In order to reduce costs, the car industry is tending to reduce the number of suppliers and involve them more than ever in helping their clients achieve their performance targets.

A supplier like you is a specialist, benefiting from the latest know-how. In your capacity as a supplier to the car industry, your challenge includes the following in particular:

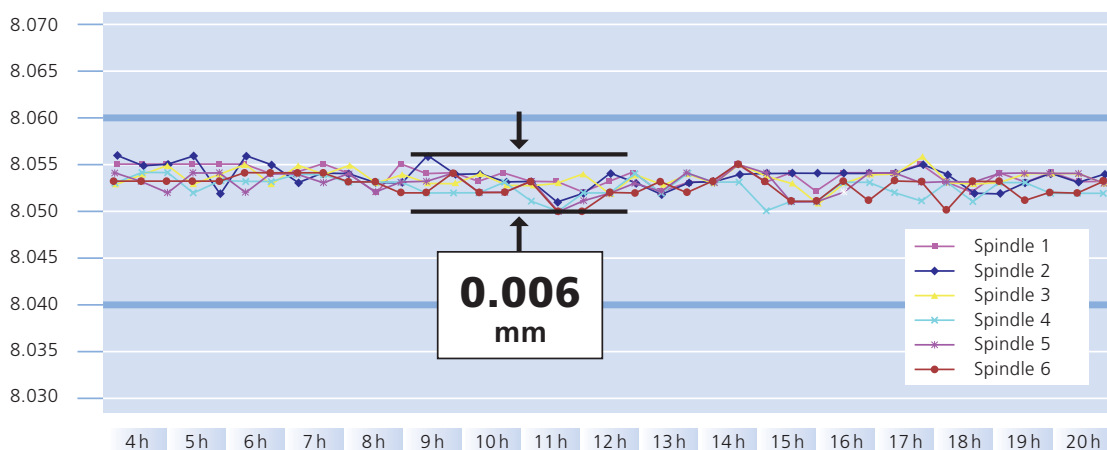
- Shorter and shorter times to execute parts
- Versatility of orders and part upgrades
- Ever growing pressure on prices
- Very demanding requirements at quality, tolerance and statistical inspection levels.

Reactivity: large batches are broken down in small lots according to the demand, with very short deliveries.

Your ability to guarantee compliance with these parameters is one of your best means of success.

AN OUTSTANDING PRECISION

Your machining solutions must, therefore, be fully adapted to meet these various challenges



Measurement conditions:

Machine warm-up time: 1 hour – Material: brass – Diameter: 20 mm – Production: 8 parts/min. – Sampling: 6 parts every 30 minutes – Measured diameter: 8.05

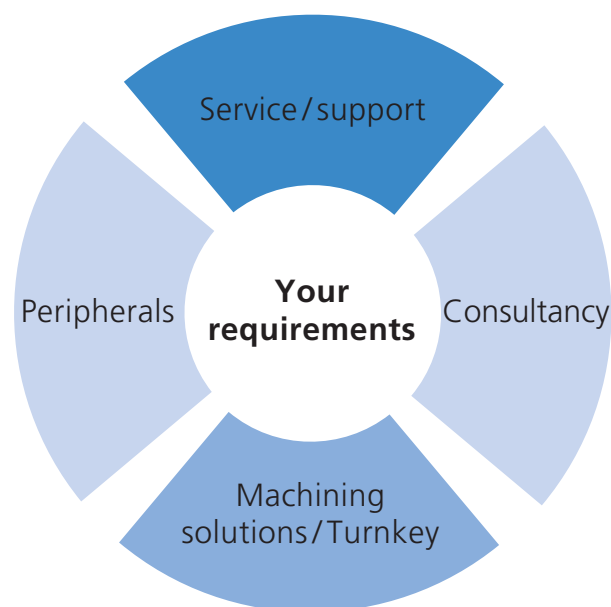
Results: Range: 0.006 mm.

OUR TECHNOLOGY AT YOUR SERVICE

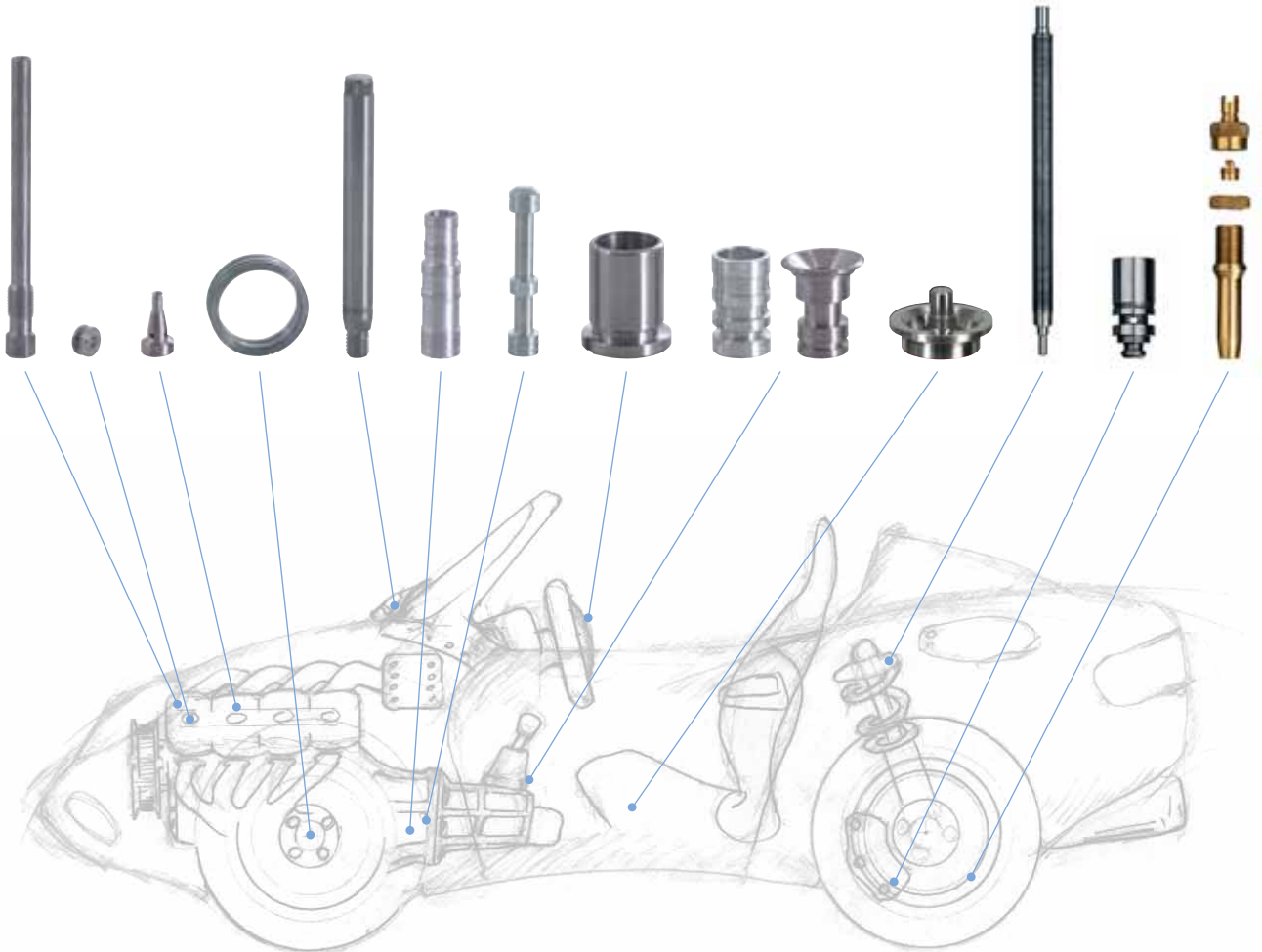
Your requirements are our challenge.

The experience we have gained in the car sector is a benefit to you !

- Tornos has been developing products marketed throughout the world for more than 120 years and the company's reputation speaks for itself.
- The experience we have gained in the car industry over the last 40 years means that we can offer high-performance machining solutions for your parts.
- Tornos offers the ultimate flexibility to the world of multi-spindles with the DECO concept. Production of small to medium series runs on the multispindle machine has now become profitable.
- Reduced setting-up times thanks to programming in masked time and the use of standard tooling mean that MULTIDECO and MultiAlpha solutions are the perfect means of meeting the demands of the car industry.
- Thanks to its fully numeric concept, the MULTIDECO and MultiAlpha combine the flexibility and high productivity precision of cam-operated multi-spindles of old.
- For parts up to 24 mm for 6 and 8 spindles and up to 34 mm for 6 spindles, Tornos can offer you a solution that allows you to tackle the car sector with confidence.



NUMEROUS TYPES OF PARTS



According to some specialists, the main decision-making criteria when buying cars include:

- **Interest:** The most reliable and solid car is nothing without that "extra something" the client is interested in.
- **Safety:** the vehicle must pass all the safety tests.
- **Reliability:** a car just "has" to work all the time.

If the automatic lathe used to execute revolving parts only has very little influence on the first factor, then indisputably it has some effect on the following two points that are essential to the vehicle's success !

To say that two thirds of the success of a vehicle depend on an automatic lathe producing dozens of small parts that the user can't even see, is of course, a pithy turn of phrase, but it does contain an element of truth...

We will be pleased to help you find the best solution adapted to your manufacturing process.

DECO CONCEPT

With several thousands of lathes supplied throughout the world to more than one thousand clients, the DECO concept, which was launched in 1996, no longer needs to demonstrate its strength with regard to reliability, precision and productivity. The system offered by the company is based on a new numeric control concept linked to programming software in a PC (based on Windows). There is still no competition. It is a real pioneering achievement in terms of improving productivity, ease of programming and flexibility of use, not to mention its user friendliness. Tornos now allows you to benefit from all this know-how.

Presently more that 500 CNC multi machines have been sold worldwide and are producing for our customers.



Display of the Gant chart program with exact calculation of the cycle time for each operation and the part.



Graphic machining simulation and assistant graphic showing programming programmed contour.

Some of the strong points of this system applied to multi-spindle operation :

- Ideal solution for the manufacture of just-in-time parts.
- Lathe kinematics centred around feasibility for sophisticated parts and high productivity (High Production machines, 2 parts per cycle).
- Pre-setting system to reduce start-up times.
- Process and equipment for specific machining operations that comply with quality requirements (surface finish) and precision (geometry and dimensions).
- Masked time programming and pre-setting.
- Program transmission via PCM CIA card, Ethernet network.
- Parameterised programming (thread chasing cycle, tapping, chippings, etc...).
- Improved efficiency through managing tool life and wear correction allowed by the concept.
- Increased precision through barrel correction and heat compensation.
- Start up facility with the option of activating or deactivating each station.
- Large-scale machining options in counter-operation mode with a dual slide and motor that is independent of the counter-spindle.

and a lot more...

A permanent support

Tornos has specialists who are only too pleased to offer advice before, during and even after sales. They will also provide training services and even quite elaborate support, whilst taking account of the stringent requirements of the car industry.

Please do not hesitate to contact us.

COMPONENTS



Aluminium
6 secs.



11 SM Pb 9
13 secs.



S 250 Pb
12 secs.



Aluminium
8 secs.



52100 Steel
13 secs.



Brass
3 secs.



12 L 14 Steel
3,75 secs.



430 F
12 secs.

COMPONENTS



Brass
5,5 secs.



11 SM Pb 9
5 secs.



S 300 Pb
12,5 secs.



S 300 Pb
14 secs.



Brass
3,5 secs.



Steel 303
9 secs.



Brass
5 secs.



430 F
7 secs.

COMPONENTS



XC 15
30 secs.



Ac
15 secs.



100 Cr 6
10 secs.



12 Cr Ni Mo 7
21 secs.



XC 15
11 secs.



Alu
7,5 secs.



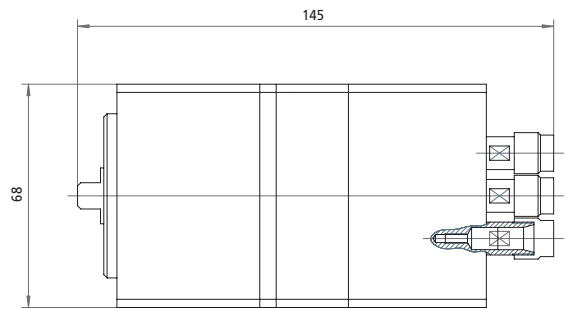
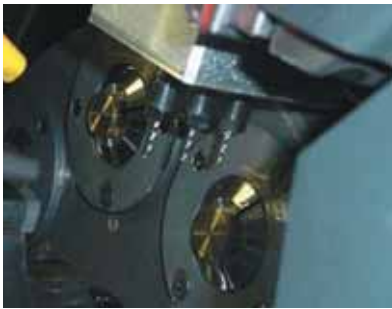
Steel 303
25 secs.



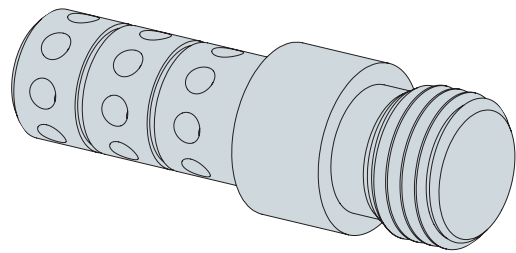
9 S Mn Pb
7 secs.

PRODUCTION

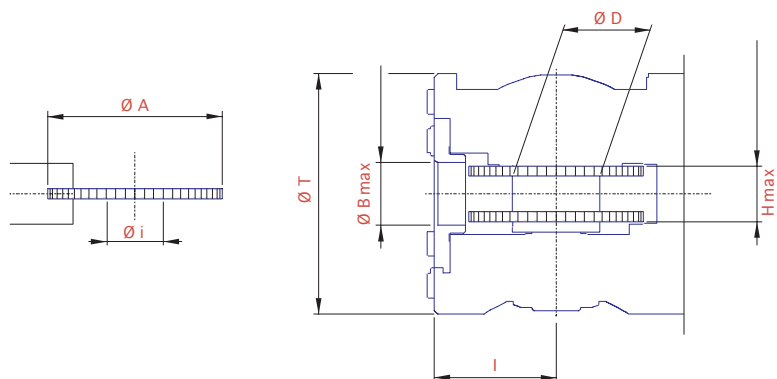
CROSS DRILLING ATTACHMENT TRIPLE SPINDLES



| | |
|-----------------------|--------------------|
| Collets | 1003 (Ø 5.30 max.) |
| Max. Torques | 1,80 Nm |
| N. max. | 6000 RPM |
| Shafts spacing | 8 mm |

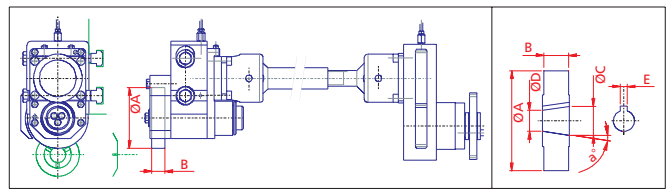
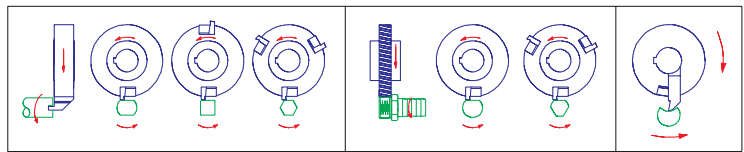


ROTARY MILLING ATTACHMENT

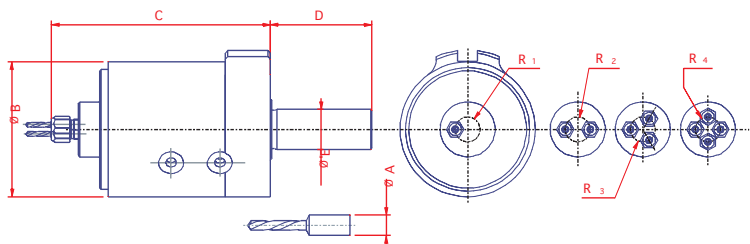


| Dimension | Head Ø | Saws width H | Ø saws A | Max. speed |
|---------------|--------|--------------|----------|------------|
| Gr. 0 compact | 69 mm | 16 mm | Ø 50 | 5000 RPM |
| Gr. 0 | 69 mm | 16 mm | Ø 63 | 4500 RPM |
| Gr. 1 | 82 mm | 22 mm | Ø 70 | 3000 RPM |
| Gr. 3 | 102 mm | 32 mm | Ø 80 | 2000 RPM |

POLYGONING AND THREAD CUTTING ATTACHMENT

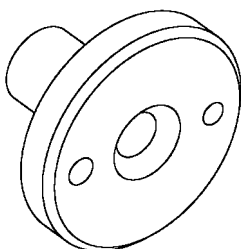


TWO SPINDLES END DRILLING ATTACHMENT



Two spindles end drilling attachment

Machining of two end drillings with the help of a special two-spindle unit on a stopped spindle of the machine.



| | |
|----------------|--------------|
| Machine | 26/6 |
| Material | SS 303 |
| Ø Drill | 1,5 mm |
| Production | 9,2 pcs/min |
| Cycle time | 6,4 sec/part |
| Shafts spacing | 8,5 mm |
| Speed | 6000 RPM |

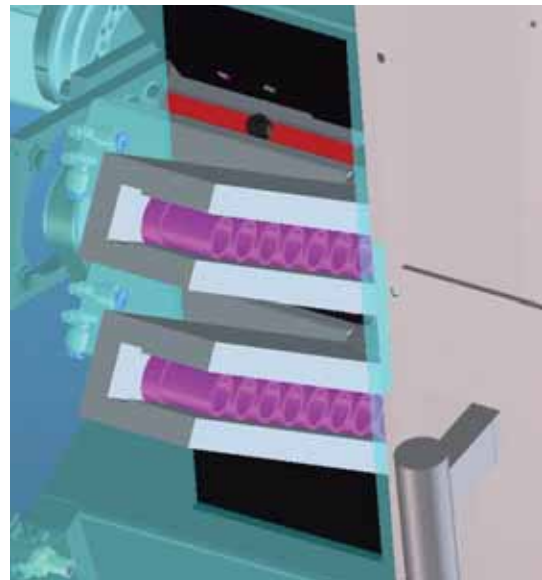
CHUCKER

Adaptation on all MULTIDECO and MultiAlpha machines

This new development for the MULTIDECO and MultiAlpha means that Tornos can offer new facilities to those companies working on blanks or forged parts.

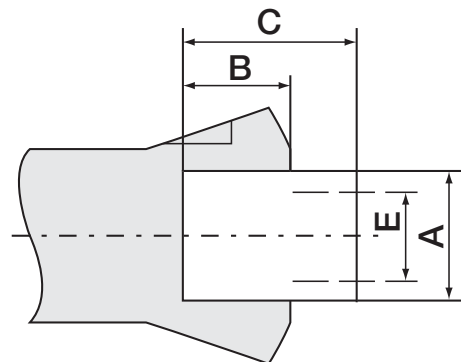
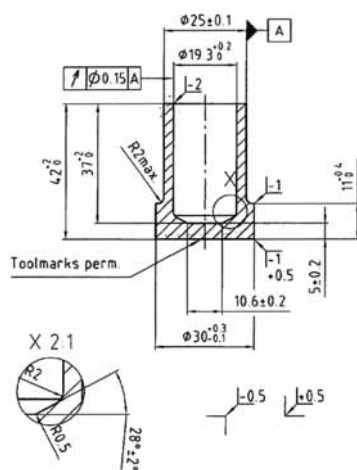
Description

- Machining blanks and forged parts
- Machining special profiles (complexity of some parts)
- Reduced ground surface area
- Chip reduction
- Facility to machine parts with large diameters
- For longer parts, the facility to load billets from the rear of the machine
- Part extraction from the spindle or counter-spindle
- The loading/unloading arm was specially designed to pick up parts both from the main spindle or counter-spindle
- The loading of the blank is adapted to the each application



| MULTIDECO and MultiAlpha Chucker | 20 | 32 |
|--|----|----|
| Diameter A max. (standard) | 30 | 40 |
| Length B max. (standard) | 15 | 20 |
| Width C max. (standard) | 40 | 50 |
| Max. clamping diameter (E) for counter-spindle operation | 24 | 32 |
| Precision of blanks h11 | | |
| Internal clamping possible | | |

(see illustration below)



Parts that do not fit within the dimensions above on request.

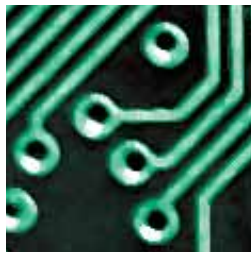
TORNOS PROVIDES SOLUTIONS
TO HIGH-TECHNOLOGY INDUSTRIES,
IN THE FOLLOWING SECTORS IN PARTICULAR:



Automotive



Medical



Electronics



Watchmaking & Micromechanics

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