



Mikron Machining systems  
for an unbeatable cost per part



# Mikron systems produce daily 8 mio. automotive components. Experience counts!



## Injection Components 1



8.5"/pc



6"/pc



1.5"/pc



3"/pc

Nozzle body on Multistar NX-24

Accumulator on Multistar NX-24

Injection valve on Multistar NX-24

Valve insert on Multistar NX-24



## Engine Components 2



107"/pc



135"/pc



51"/pc



26"/pc

Housing on Multistep XT-200

Distributor shaft on Multistep XT-200

Rocker arm on Multistep XT-200

Throttle body on Multistep XT-200



## Brake, Safety & Steering Components 3



6.5"/pc



3"/pc



15"/pc



198"/pc

Drum brake cylinder on Multifactor

ABS brake on Multistar CX-24

Bending element on Multifactor

Air dryer modul on Multistep XT-200



## Turbocharger Parts 4



150"/pc



55"/pc



120"/pc

Bearing housing on Multistep

Compressor housing on Multistep XT-200

Impeller Wheel on Multistep XT-one



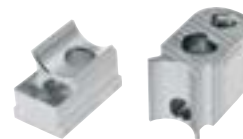
## Parts for Air Conditioning System 5



8.5"/pc



100"/pc



7"/pc

Expansion valve on Multifactor

Compressor cylinder on Multistep XT-200

Holder on Multifactor



1"/pc

Guide for fuel injection  
on Multistar CX-24



8.5"/pc

Springholder  
on Multifactor



64"/pc

Injection Body  
on Multistep XT-200



125"/pc

Injection valve body  
on Multistep XT-200



15"/pc

Valve body  
on Mikron NRG



7.5"/pc

Rocker arm  
on Multifactor



8"/pc

Cam bracket  
on Multifactor



36"/pc

Battery safety clamp  
on Multistep XT-200



0.6"/pc

Plug connector  
on Multistar LX



12"/pc

Steering sleeve  
on Multifactor



31"/pc

Steering fork  
on Multistep XT-200



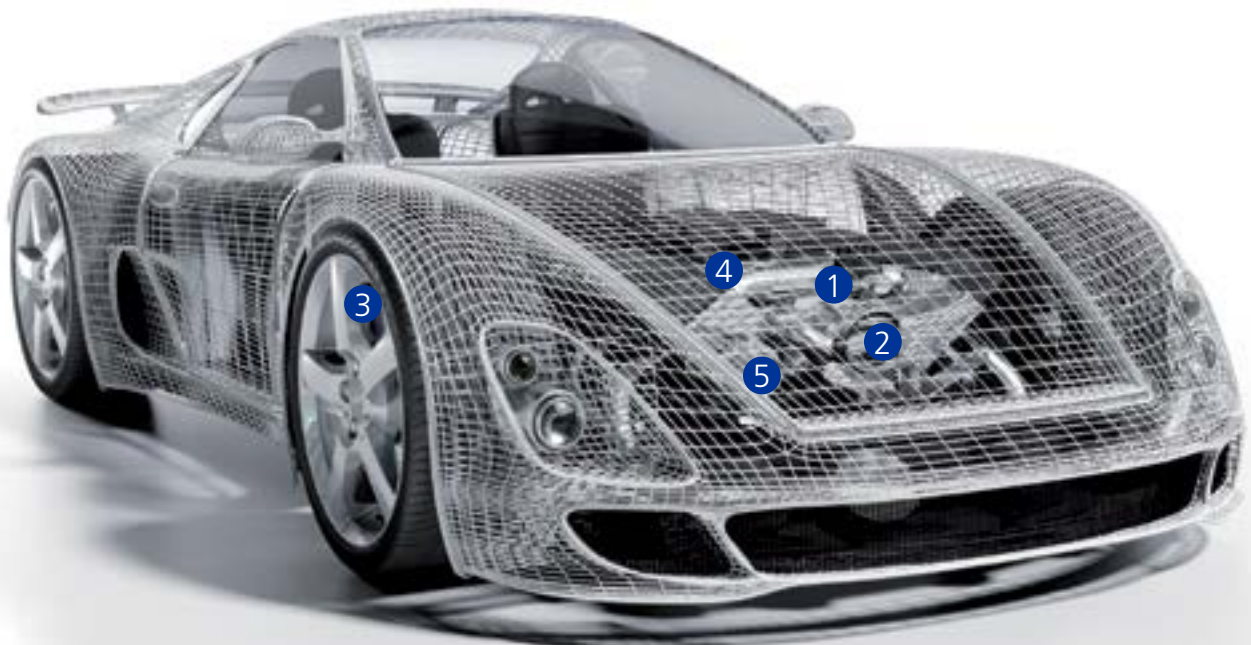
55"/pc

Steering gear: pump body  
on Multistep XT-200



150"/pc

ABS Valve  
on Multistep XT-200



# Ideal machining solutions to produce components for engine timing systems

The production of components for engine timing systems is synonymous with high accuracy, multiple operations, top quality and high output.

It also means that special solutions for clamping, drilling of very small diameter deep-holes and precise high quality tooling is necessary in order to ensure economical and trouble-free production.

Mikron machining systems are the perfect solution to manufacture these important components.

Components are, in most cases, produced from either an aluminium casting or a cast iron blank. In the case of aluminium the use of high-speed spindles is essential, as well as a functional coolant/filtration system, whereas for cast iron parts fixture design is critical to ensure that, where possible, the machining process is carried out in a single phase. Consideration should also be made when machining cast-iron parts, to determine that the correct cutting conditions are established.

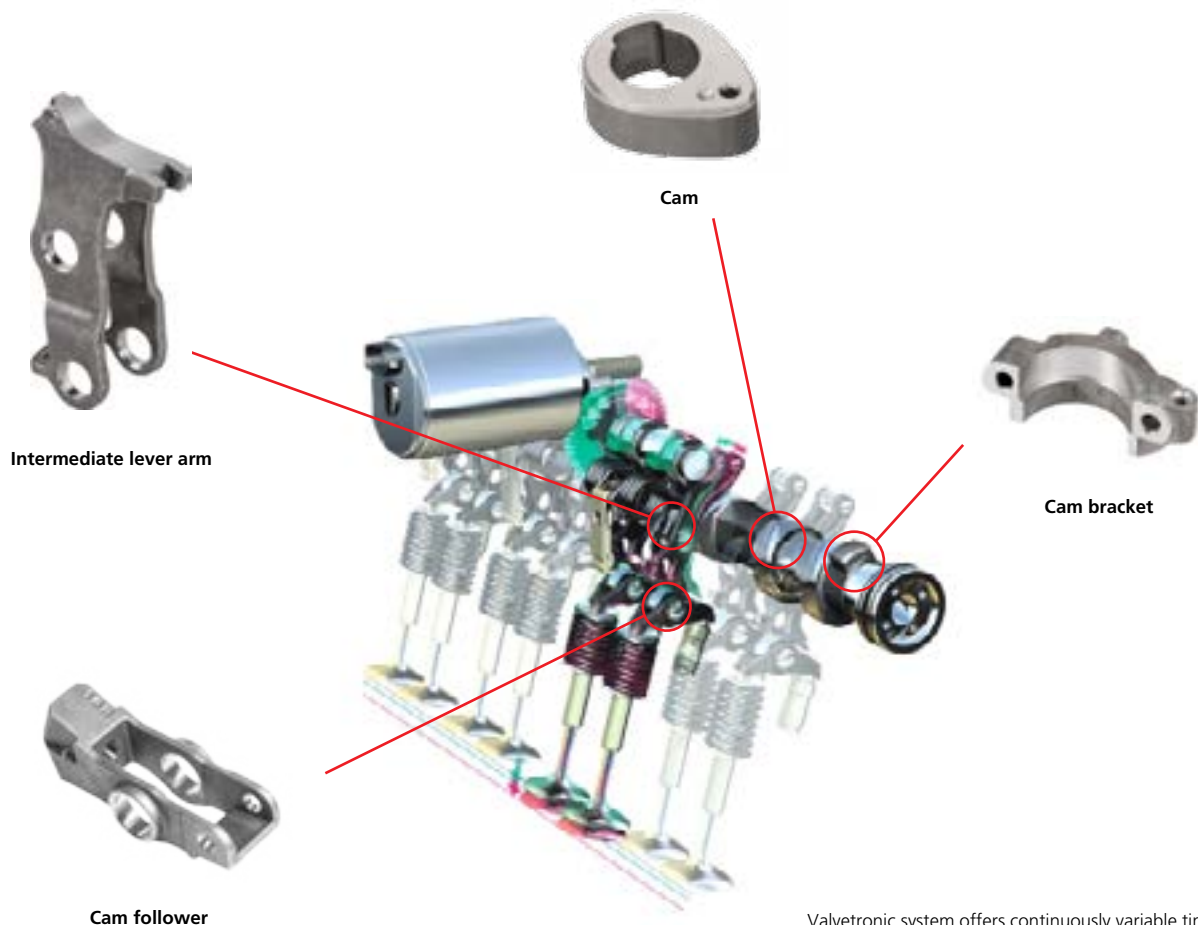
Where high volumes are required a double cycle offers particular advantages for cost reduction.

Complete machining in one single clamping starting from a cut-off profile is also possible. All operations are performed meeting the high technical requirements in respect to accuracy and quality.

To reach a high level of surface quality on certain operations it is necessary to consider through spindle coolant with the specific cutting tools.

The high-performance cutting tools used on the systems are developed and produced in house at Mikron Machining. They are regarded as some of the best in the world.

Mikron Machining offers the optimum solutions according to the production needs of each component and individual production philosophy of each manufacturer.



Valvetronic system offers continuously variable timing along with continuously variable intake valve lift.

# Power steering components produced on Mikron machining systems

We enable our customers to set new standards in their production processes and help them to achieve and maintain leading positions in their automotive markets. With our portfolio of high-precision transfer systems and cutting tools, we fully meet the stringent demands of the automotive industry for accuracy, quality, complex operations and flexibility.

Market leaders worldwide are for years relying on Mikron machining systems to improve quality of their machined parts while reducing the cost per part at the same time.

Amongst them are:

**CATERPILLAR®**

**CITROËN**

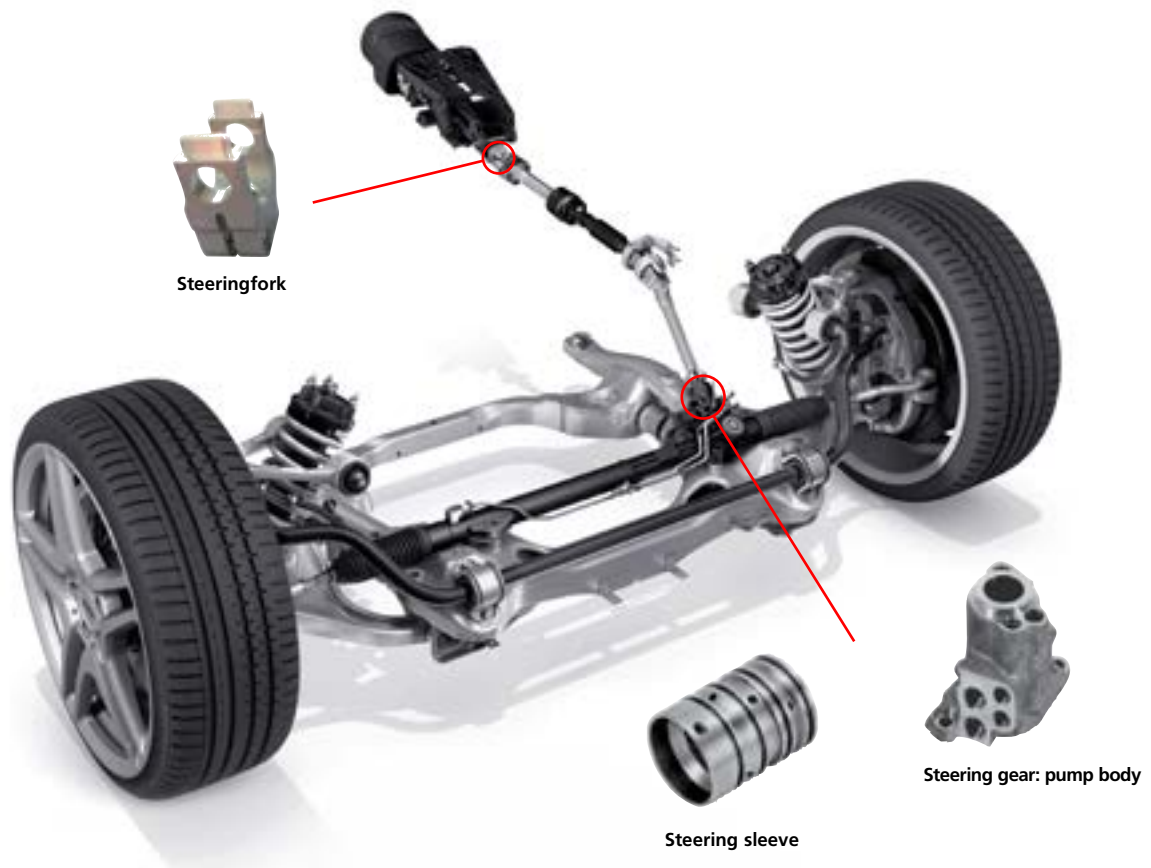
**BOSCH**

**TRW**

**Cummins**

**Mercedes-Benz**

**ZF**





# Mikron Machining

## Efficient production solutions

### Mikron Multistep XT-200

#### Advantage through modularity

The Multistep machining system is a true productivity centre! Thanks to its unique, unbeatable modularity and flexibility, ongoing production requirements can be accommodated at any time, with incomparable precision.

- A high-precision modular machining center for workpiece dimensions of up to 200 x 200 x 200 mm
- Expandable with modules, 1 loading module with up to 4 working modules
- Chip-to-chip time less than 1 second
- Machining on 5 1/2 faces in one clamping,
- simultaneous 5-axis, machining
- 10-minutes changeover time, ideal for changing lot sizes



### Multifactor 12 or 15 stations

#### The classic performer

The high-precision rotary transfer machine Mikron Multifactor cleverly combines high precision with low-cost productive performance. At the same time, the machine's modular structure ensures long-term universal use. Multifactor gives you a high-capacity system that keeps its value over time.

- High-precision rotary transfer machine with 12 or 15 stations for workpiece sizes of up to 100 x 100 x 100 mm
- Machining from wire, bar or cast blanks
- System reconfiguration at reasonable cost both today and tomorrow
- Complete machining without reclamping



### Mikron NRG

#### The new generation of transfer machines

- Full CNC high-precision rotary transfer machine with 12 stations and up to 30 working units machining simultaneously
- For extremely high-precision workpieces up to 80 x 80 x 80 mm or cylindrical pieces up to Ø 65 x 100mm
- Complete 6-sided machining possible



### Mikron XT-one

#### Dual spindle, 5 axis, flexible production center

The Mikron XT-one machining center is worldwide amongst the most versatile and precise machines for complex parts.

With its numerous configuration possibilities, every Mikron XT-one can be customized into a perfect solution for your requirements.

- 2 independent spindles (configured as needed 15K & 40K rpm)
- 2 fixtures for parallel operations (machining and loading)
- Simultaneous production of different components possible
- 6 face machining capability
- Workpiece size up to approx 8 inches cube



### Mikron Multistar NX-24

The ideal solution for cost-effective batch production of a few hundred to many thousand parts from materials such as alloy steel, brass, titanium or aluminium – with maximum dimensions of  $\varnothing$  35 mm and maximum lengths of up to 65 mm.

Up to 44 machining units operating simultaneously at 24 stations, assuring a very high output rate.

- 100% programmable and 100% versatile – all axes electronically controlled for fast changeover
- Capacity of up to 30 pieces/minute
- High precision



### Mikron Multistar CX-24

What makes the Multistar CX-24 so special? Its unbeatable precise performance and speed.

The Multistar CX-24 controls spindle movements with linear curves. The quickly interchangeable control curves provide processing flexibility, and 24 additional intermediate stations enable measuring, turning over of the workpiece – also in different shape, monitoring and cleaning procedures in the processing cycle.

- Precise serial production of part families and demanding workpieces
- $\pm 2.5 \mu\text{m}$  table index accuracy
- Up to 44 machining units operating simultaneously at 24 stations, assuring a very high output rate



## Mikron Machining

总部

**Mikron SA Agno**

Via Ginnasio 17  
CH-6982 Agno 瑞士  
Tel. +41 91 610 61 11  
Fax +41 91 610 66 80  
mag@mikron.com

**Mikron GmbH Rottweil**

Berner Feld 71  
D-78628 Rottweil 德国  
Tel. +49 741 5380 0  
Fax +49 741 5380 580  
mro@mikron.com

**Mikron Corp. Monroe**

200 Main Street  
P.O. Box 268  
Monroe, CT 06468 / USA 美国  
Tel. +1 203 261 31 00  
Fax +1 203 268 47 52  
mmo@mikron.com



<http://youtube.com/mikrongroup>  
[www.mikron.com](http://www.mikron.com)

Mikron® is a trademark of Mikron Holding AG, Biel (Switzerland)