

# JUNKER AUTOMOTIVE

Dynamics calls for strong partners



*Grinding technology for the automotive industry and its suppliers is our core business.*

*Therefore we set the highest standards not only for our technology, but for our services as well.*



## Partner out of passion



### **Competence for the entire drive train**

JUNKER's grinding technologies cover many automotive applications, particularly for engines, injection, and transmission. This includes cylindrical and eccentric grinding of crankshafts, camshafts, and transmission shafts as well as fine machining of various precision parts for mechatronics and mechanics.

### **Structured product range**

JUNKER systematically developed its range of products to offer companies of all sizes optimal solutions, beginning with stand-alone machines up to interlinked production lines.

The JUNKER platform strategy places the most important grinding machines on a joint technical foundation. The benefit: perfected components and high reliability.

The peripheral units such as controls, motors, and loading systems are supplied by internationally renowned companies.

Thus exclusively standardised interfaces are integrated into each machine to ensure highest compatibility and sustainability.



#### JUNKER AUTOMOTIVE product line

- Cylindrical surface high-speed grinding
- Eccentric surface high-speed grinding
- Pin chasing high-speed grinding
- Centerless cylindrical grinding
- Surface grinding, both-sided with double disc
- Multiple bearing grinding
- Parallel grinding with two carriages
- Control groove high-speed grinding
- Combination of fine surface finish, incl. cutting options



#### Innovator and problem solver

JUNKER is the pioneer for CNC grinding technology with CBN and diamond abrasives. This lead in technology is proven by the more than 1000 machines delivered to the automotive industry in the past 25 years. JUNKER technology has influenced grinding technology on an international scale: Well proven developments include QUICKPOINT and the 3-point clamping system for grinding wheels, and workpiece drivers such as turning centres or female centers.

#### A true global player

JUNKER's Automotive sales, support, and services are internationally orientated. Our experienced key account management serves customers professionally and personally. Service offices and call centers in all important industry regions of the world ensure fastest possible support. If desired JUNKER Automotive can send experts to the customer's site - wherever in the world that may be.

*The core competence of an automobile manufacturer is the engine.*

*JUNKER grinding technologies make sure that it stays that way.*



## Reliable out of tradition



### Competence unites

Automated production lines for grinding crankshafts, camshafts, or transmission shafts are a major competence of JUNKER. A real time example: A completely automated, flexible manufacturing island machines a complete work piece family of 2-, 3-, and 4-cylinder crankshafts. The JUNKER line competence is based on two factors: on a platform strategy and a variable modular concept. The result is highest flexibility - for retooling as well as for setting up new components.

Accurately tuned cycle times and optimized loading concepts keep processing times short.

### Experience is decisive

Custom-made machining concepts are the best way to lower costs. That is why JUNKER's technology experts co-operate closely with the development departments of the manufacturers. Experience is a key factor in this regard. Specific modifications of components, can for example

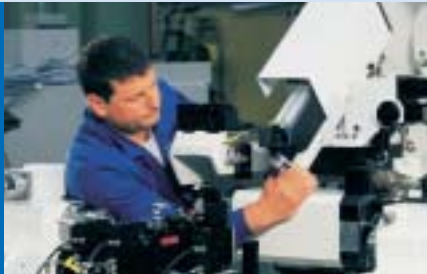
lead to significant cycle time or cost advantages. By this JUNKER develops previously unused optimisation potentials with its broad engineering competence.



#### JUNKER project management

- After-sales service by project manager
- Constant order progress monitoring
- Shortest project duration and delivery time
- Reliable on time delivery

**Result: satisfied customers**



#### Reliability counts

Every investment has primarily one goal: reliable production for a long time. The high percentage of common parts of about 70% and the interchange ability for example of the various wheel heads within a series contribute decisively along with the simplified service to making retooling of line or stand-alone machines an easy act without complex special solutions. Avoiding operational errors also creates reliability: The entire machine range is

presented to the operator in a uniform graphic user interface under Windows: the Erwin Junker Operator Panel EJ-OP. Either Sinumerik or a Fanuc CNC controllers are available.

*Many suppliers feel caught between need for innovation and the desire for security.*

*JUNKER turns that into a strategy for the future: Innovation without risk.*



## The future needs freedom of movement



### **Mid size enterprises are convinced**

When corporate options are continually reduced because of economic conditions then trust in a serious partner can open new venues. The combination of broad-based technology and profound know-how solves the most challenging problems. An objective selection of the most economic machining solution that is not influenced by a limited range of technology and flat hierarchies allow fast decisions. This quickly leads JUNKER customers to production solutions that ensure the greatest possible degree of efficiency.

### **Technology creates new prospects**

JUNKER technology allows time- and cost-saving combinations of many grinding operations, such as the complete grinding of camshafts: cylindrical grinding of the bearings, the sealing ring seat, as well as surface grinding of the guide bearing combined with the eccentric grinding of the cams. Or the complete machining of a transmission shaft in one clamping: cylindrical grinding of the bearing seats with QUICKPOINT, surface grinding of the shoulders, as well as various plunges with special contoured grinding wheels and

thread grinding. For mechanical production by sub-contractors JUNKER offers machines that combine precision and reliability at a high standard.



#### JUNKER Technology Center

- Developing new technology
- Evolving established technology
- Project accompanying practical process optimisations on orders
- Production of prototypes, zero series, and pre-production series



#### Cutting costs with a system

The potentials for saving time and money are multi-faceted and complex. Optimizing details is important, but effective steps towards greater efficiency call for a "holistic" approach. JUNKER develops offers for rationalisation by combining processes such as the complete machining of crankshafts in one clamping. Reduced processing times are the result of systematically shortened cycle times and optimised loading concepts. The 3-point clamping system developed by JUNKER

shortens the time spent exchanging the grinding wheel during machine re-tooling.

Even human factors can lower costs: The uniform graphic user interface on all models and standardised controllers from established manufacturers reduce the effort for training and instruction and also reduce the risks of expensive operator errors.

#### Teamwork in detail

Machining concepts are basically designed in close co-operation with the customer. In concept competitions the final design of a component is developed by the creativity and the experience of the engineers in combination with the broad JUNKER technology and product spectrum. Simultaneous engineering accelerates the development phase and leads to optimally harmonized results.

*It's best to adapt to customer expectations.*

*Technology from JUNKER allows you to deliver highly precise mechatronics parts absolutely reliable.*



## Competitiveness can be planned



### **Remain flexible**

Thanks to the platform strategy, stand-alone machines and interlinked systems from JUNKER leave many options for future applications open. This makes them flexible in light of changing the use of the individual machine, but also for integrating the machine into a modified production line.

Single-spindle machines, which are providently equipped with a modified work head can be retrofitted with a second grinding spindle so that its area of appli-

cation can be expanded. The total output of a production line can be extended ideally with stand-alone machines to complete machining in small steps. But also when operating machining lines, the possible output can be increased successively by individual machines in case maximum capacities have been reached. Loading and work piece transfer can be individually adapted starting with manual loading to partial automation up to fully-automated systems.

### **Guarantee precision**

Consistent, revisable quality is the key to success for high-precision grinding of miniature parts. JUNKER accommodates this requirement with each type of machine. The diameters and concentricities of the main and pin bearings for example are measured in-process in the machine during crankshaft grinding and if necessary automatically corrected in the grinding program.



### JUNKER SERVICE

Technical questions or rapid service needs? Further help is available from JUNKER Service, which coordinates an experienced team of 70 experts.

- In all industry regions: EC, NAFTA, Asia
- Hotline
- Technical questions
- Spare and wear parts
- Online analysis of the machine status

**Result:**  
**reduced downtime,**  
**low service costs**



### Gain versatility

Individual features and options are a matter of course for JUNKER grinding machines. Every customer has the choice between manual and partially- or fully-automated loading systems. Integrated sensors and sophisticated clamping systems make further modifications possible. The perfected control systems of Siemens and Fanuc are used.

### Serving the customer

JUNKER Technology offers individual customer service for all activities before and after the investment. They include among others:

- Installation and initial start-up
- Training of operators and maintenance personnel (also on-site)
- Production assistance
- Maintenance contracts
- Spare parts service worldwide (supported by likewise globally active suppliers)

Additional reliability is established by implementing standardised machine parts from known manufacturers who also guarantee fast service worldwide.



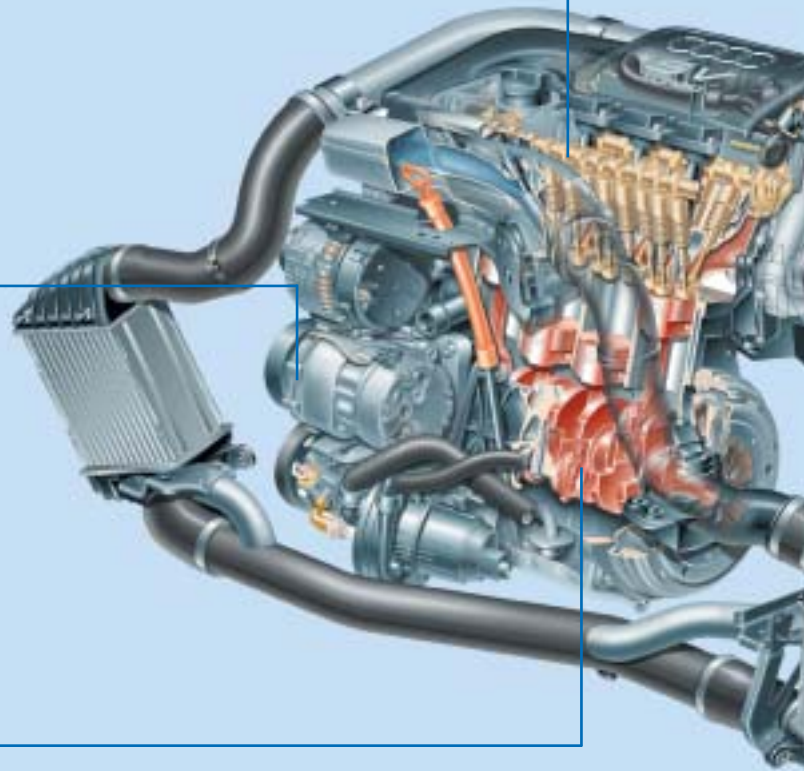
**Engine timing**



**Fuel-injection devices**



**Crank mechanisms**



## Competence for engines and drive train



### **Production lines for all needs**

JUNKER has extensive references for planning and realising production lines. Whether interlinked machines or stand-alone processing machines: JUNKER places great value on standardised interfaces, e.g. for work piece transport and gages because that ensures the compatibility of all parts of the system for a long time to come. If desired, JUNKER will also act as

general contractor for complete full-automation including co-ordination of subcontractors up to the acceptance of whole lines.

A major customer benefit is the broad product portfolio, because on this basis JUNKER can develop various solution concepts for any request. The customer

can thus choose the production method which best suits his general conditions and long-term strategic plans. For example with respect to future retooling of the production line for other work pieces.



**Transmission components**



**Fine surface finishing**



**Axle and chassis parts**



**Special grinding solutions**

### Ensuring training

Qualified employees are the key to success. In dual education at the university of co-operative education and in the company JUNKER is providing graduates in civil engineering (BA) with qualifications in Business Administration, Electrical Engineering, Mechanical Engineering, and Information Technology. Students from universities and colleges around the world regularly receive the opportunity to participate in practical semesters and write thesis papers.

### Protecting the environment

JUNKER grinding machines can be equipped directly from the factory with an exhaust system by LTA Lufttechnik GmbH. It filters the oil mist out of the exhaust to keep the air fresh in the production hall and in nature. And in winter the warm exhaust can be utilised to heat the building.

## EUROPE

### JUNKER Maschinen

Erwin Junker  
Maschinenfabrik GmbH  
Junkerstraße 2  
77787 Nordrach  
Germany

Phone: +49 (0)7838 84-0  
Fax: +49 (0)7838 84-302  
E-Mail: [info@junker.de](mailto:info@junker.de)  
[www.junker-group.com](http://www.junker-group.com)

### JUNKER Grinding Technology

Erwin Junker  
Grinding Technology a.s.  
Office Prague  
Sokolovská 68/105  
18600 Praha 8-Karlín  
Czech Republic

Phone: +420 2 24890610  
Fax: +420 2 24818244  
E-Mail: [info@junker.cz](mailto:info@junker.cz)  
[www.junker-group.com](http://www.junker-group.com)

### JUNKER Grinding Technology

Erwin Junker  
Grinding Technology a.s.  
Plant Holice  
Pardubická 332  
53413 Holice  
Czech Republic

Phone: +420 466 003111  
Fax: +420 466 682149  
E-Mail: [info@junker.cz](mailto:info@junker.cz)  
[www.junker-group.com](http://www.junker-group.com)

## EUROPE

### JUNKER Machines Outils

JUNKER France  
13 rue Camille-Desmoulins  
92441 Issy Les Moulineaux Cedex  
France

Phone: +33 (0)1 58042781  
Fax: +33 (0)1 58042300  
E-Mail: [info@junker-france.com](mailto:info@junker-france.com)  
[www.junker-group.com](http://www.junker-group.com)

### JUNKER Machine Tools

Junker Machine Tools &  
Technology (UK) Ltd.  
Hadleigh House  
32 Sefton Road, Fulwood Park  
Sheffield S10 3TP  
U.K.

Phone: +44 (0)114 2303453  
Fax: +44 (0)114 2309382  
E-Mail: [info@junker-group.co.uk](mailto:info@junker-group.co.uk)  
[www.junker-group.com](http://www.junker-group.com)

## NORTH AMERICA

### ERWIN JUNKER

#### High Performance Grinding Systems

Erwin Junker  
Machinery Inc.  
2541 Technology Drive, #410  
Elgin, IL 60124  
USA

Phone: +1 847 488 0406  
Fax: +1 847 488 0436  
E-Mail: [info@junker-usa.com](mailto:info@junker-usa.com)  
[www.junker-usa.com](http://www.junker-usa.com)

## ASIA

### JUNKER Maschinen

Erwin Junker Maschinenfabrik GmbH  
Shanghai Representative Office  
Rm. C, 20 Floor, North Gate Plaza  
No.99 Tianmu Road West  
Shanghai 200070  
P.R. China

Phone: +86 (0)21 63806911  
Fax: +86 (0)21 63806955  
E-Mail: [info@junker.com.cn](mailto:info@junker.com.cn)  
[www.junker.com.cn](http://www.junker.com.cn)

### JUNKER Maschinen

Erwin Junker Maschinenfabrik GmbH  
Beijing Representative Office  
Rm. 1606 Liye Building  
No.71 Majiapu Road East, Fengtai Dist.  
Beijing 100068  
P.R. China

Phone: +86 (0)10 51165066  
Fax: +86 (0)10 51165022  
E-Mail: [info@junker.com.cn](mailto:info@junker.com.cn)  
[www.junker.com.cn](http://www.junker.com.cn)