

in operation worldwide



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## EXPERTISE IN FORGING INDUSTRY



innovation made by experience

## WKB – Your partner for forging industry

### We work out individual solutions – together with our customers

WKB Systems GmbH supply solutions for low-cost and robot-controlled automation in the forging industry.

### We are specialised in:

Material cutting

Material warming

Material transport

Robot

Material forming

Handling of blanks

Tool changing

Quality control systems

Take advantage of proved technology and wide experience.  
WKB-innovation made by experience



WKB Systems GmbH is an innovative and worldwide operating manufacturer of high tech investment goods for the forging industry. We develop and manufacture custom-made solutions for forging automation.

### Approved technology – worldwide

The WKB machinery is in operation all over the world and has been proven successful in Europe, CIS countries, Middle East, the USA, Mexico, Africa, China and Canada, etc.

### WKB stands for:

- Innovative solutions according to your requirements
- Outstanding quality
- Customised equipment
- High-performance, reliable and easy to maintain machinery
- Best value for money

### WKB: qualified – innovative – dynamic

Our experienced and motivated team consists of highly qualified professionals in all business areas and gives you ongoing support as a reliable partner. Our customer always takes part in the development process of a project, so individual solutions are developed for every of his requirements.

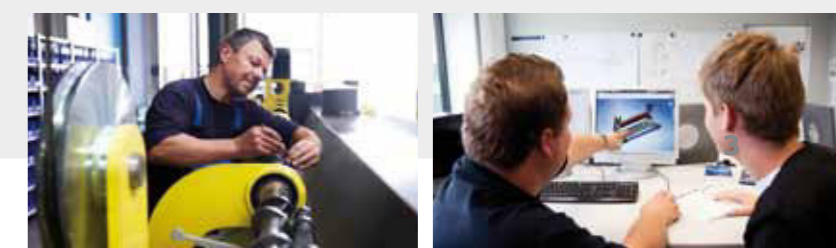
Our engineering specialists possess the broad technical knowhow, professional experience of many years and strong customer orientation.

In such a way we supply state-of-the-art practice-oriented solutions from one source:

- Definition of your requirements
- Planning of a technical solution
- Design and electrical engineering
- Production and assembling

### And at your site:

- Supervised assembling, commissioning and handover of the equipment
- Operator training
- Spare parts supply and after sales service
- Maintenance
- Modernisation and production process optimisation



Safety and efficiency with WKB equipment.  
Optimise your production process!

## Material cutting / Material warming



Highest standards  
for forging industry



### Material cutting

The bar magazines may be equipped with one or more troughs. They may have their own feeder and bar transfer system.

A prism roller conveyor is used to forward the bars via diameter check and weighing stations to the tong feeder. Tong feeder is equipped with two servo motor-driven and alternatively operating grippers and forwards the bar material into the tong opening.

The WKB tong feeding systems with upstream bar magazines may be used with traditional, hydraulic or mechanical cold tongs.

They are especially suited to pulsed tongs with high requirements in terms of feeding dynamics and precision.

### Technical data

material dimensions

Round section	Ø 20-100 mm
Length	up to 9,000 mm
Cycle time	2.0 seconds

### Material warming

The warmer extraction device continually receives hot blanks at temperatures up to 1,300°C from the induction coil and forwards them for further forging operation.

The glowing blanks are pushed out of the induction heater, detected by the system and grabbed by pneumatically operated tongs. These tongs grip the blanks, extract them through the kiln opening and place them on the delivery chute of the slide channel. An optical sensor measures the blanks' temperature and controls correspondingly the position of separation points of the channel (good / too cold / too hot). Any adhesion of blanks is automatically detected. All the mechanical components are electrically and thermally insulated.

Heavy load warmer extraction device was specially developed for large material cross-sections and loads (max. 300 kg).

Furthermore 2-axle manipulators are used as loading/unloading systems and installed in front of the rotary kiln opening. They are equipped with hydraulic water-cooled grippers and servo-drives for fast loading and unloading of a rotary kiln.



Perfect solution for every requirement.  
Take advantage of our experience!

## Material transport / Robot



Flexibility, speed,  
precision

### Material transport

Different types of conveyor systems are used depending on their application in forging industry.

The toothed chain system in a robust design is used for transport of heated blanks to a press or a hammer (high-speed conveyor).

The chain rotating system is used to link two presses or a hammer and a press for transport of forged products between both forging units.

### reliable – robust - individual

The **shuttle system** is used to transport forged products. It consists of a longitudinal girder with solidified slide rails screwed on it and a shuttle. The way passed is controlled with an absolute encoder so every position can be precisely reached.

The shuttle systems are servo motor-driven. Their belt drives are protected against heat to make them suitable for forging industry.

The shuttle is driven by a servo motor.

Usually the shuttle travels from the main press to the next operation station. Handling manipulators are used for extraction purposes.

### Robot

Thanks to their enormous flexibility, speed and precision the robots are widely used in various forging plant sectors as insertion or transfer robots for material feeding.

WKB Systems GmbH also supplies a wide range of robot accessories: tongs, grippers, special handling, etc.

An extensive range of robot accessories allows the wide usage of a robot around the press section of forging industry:

- Hammer forging tongs
- Hydraulic heavy-load gripper
- Insertion and transfer gripper
- Forging die greasing head
- Robot foot brackets
- Robot portal brackets
- Robot rotating brackets (7th axle)
- Robot linear axles



The state-of-the-art technology with WKB equipment.  
Improve your competitiveness!

## Material forming / Handling of blanks



Innovative for  
highest standards!

### Material forming

In order to make the deformation machine less strained a preforming device was developed. It is a horizontal hydraulic press with tool changing equipment for preforming of a blank.

Compression press of WKB was designed and constructed for production of pipes in the automotive industry. This device uses heat treatment to compress pipe ends.

The **Twister** is used to precisely twist pins of forged crankshafts. The loading and unloading of the Twister occurs with an automated manipulator or manually with a special device.

The twister consists of fixed lower and upper clamping jaws and the twistable upper and lower clamping jaws mounted on support rollers.

After the slide stroke has been introduced, the crankshaft is fixed in the area that is not to be twisted with the lower jaw and the upper jaw, which is placed onto the ram.

The twistable jaws in the form of split discs are turned by the front and back twist cylinder fixed onto the ram by an angle of max. 72+5 degrees against an adjustable stopper.

The twist cylinders are mounted on both sides on the ram so as to be movable and transfer the twist torque to the appropriate jaws. The crank pin clamps inside these twistable jaws and the crankshaft cheeks form a circular arc.

### Handling of blanks

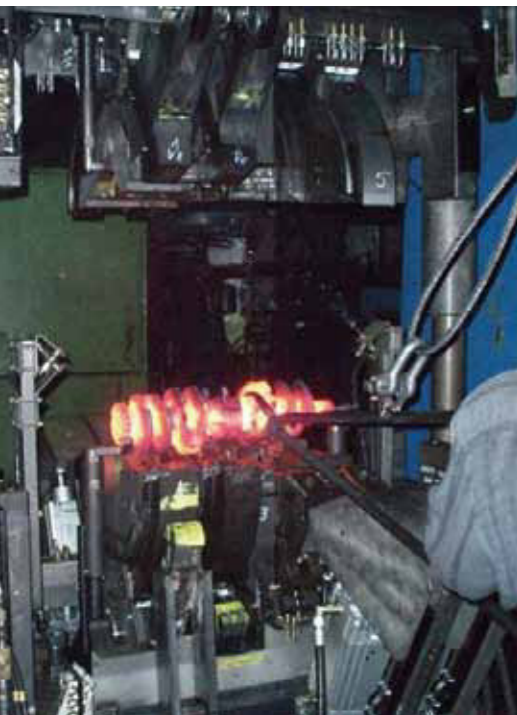
Soft racks are used for safe transportation of hot blanks to the containers. They consist of a vibrating conveyor and a swivel unit, on which the transport container is moved.

While using the tandem soft rack the products are diverted with pneumatically operated plates in order to ensure smooth feeding of transport crates. While the crate is being changed, the products are stored in a rack that can be swivelled pneumatically.

The Z-conveyor, also known as a swan neck conveyor, is used to transport the forged products, scrap or trimmed waste away from the press.

### homogeneous cooling – highest quality

After being formed, hot forged components are often subjected to a controlled cooling process to improve their physical characteristics. Steel plate conveyors, special conveyors or suspension truck systems can be used for transportation.



Highest quality of forged products.  
Guaranteed!

## Tool changing / Quality control systems



### Tool changing

Tool changing carts are used for rapid re-tooling of press in case of a format change, cleaning or changing of forging dies. Entire tool holders can be changed and then processed separately.

Tool changing carts of WKB Systems GmbH usually operate on rails and are equipped with their own tool slide on/off systems. They are also modified to suit the characteristics of presses and tools and are driven hydraulically or by means of a motor. A positioning unit is used to ensure precise tool transfer.

Tool lifting, turning and separating device is used to separate or join forging tools (upper and lower parts), where the upper part can be rotated by 180° and placed next to the lower part on a roller conveyor.

### Tool cleaning

The use of lubricants in the forging process causes heavy contaminations that are difficult to remove. They can be promptly removed by a cleaning system of WKB. Our cleaning concept is not just intended for tool maintenance but also for short time of re-tooling.



### Broad experience for highest efficiency!

### Quality control systems

High requirements for product quality mean that 100% product check is necessary.

The control procedure can take place as a part of a working cycle. The measurement can either be performed during the working cycle or in pass-through operation. The results are immediately evaluated and forwarded to the peripheral units (forging hammer, discharge switch, etc.).

The quality control systems are protected against temperature, ground motions and other external influences and can therefore be used closely to the hammer or press line.

