

■ **Kobra Formen GmbH, 08485 Lengenfeld, Saxony, Germany**

# Pioneering innovation – technologies in modern mould construction

**Modern mould construction is more than just the development, production and sale of purpose-built moulds for the mass production of blocks, stones and pavers. The variety and complexity of products produced by concrete product manufacturers and their production equipment require stable, innovative and cost-effective solutions for**

**mass produced products, the realisation of project-related production quantities or individual high-quality products. As a leader in the industry, Kobra Formen GmbH has developed resource-saving technologies for all plant manufacturers and researched alternative material combinations and new materials in mould manufacturing.**

Kobra Formen GmbH has proved itself able to perform at a high standard with successful mould design and manufacturing over the last 16 years. The company, which is located in the Vogtland region of Germany, has seen consistent, healthy growth since it was founded in 1990. Its main focus has been on the development and improvement of new technologies and accessory features. In 2006, this flexible, medium-sized business invested €1.2 million in research and development and has submitted more than 100 patent applications. Currently, the company's skilled and knowledgeable mould makers cannot envisage any technical challenges which they cannot meet.

Genuine innovations are advantageous, pioneering developments which have the potential for comprehensive, successful implementation. Kobra Formen GmbH aims to impress on customers that it is competent at providing, realistic, long-term solutions for their problems through functionality, quality, price and service. When developing new products, the company makes a distinction between the basic requirements for mould technologies and the factors which affect those technologies.

On the one hand, the mould must comply with the durability specifications while having the distinguishing features of simple and precise handling. Because the modules and wearing parts (which can be exactly reproduced) are replaceable, the customer is able to repair his own moulds following instructions or have them processed at the Kobra Service Centre.

On the other hand, the customer's technical specifications in relation to their pro-

ducts and technical background are also factors which affect the technology. Thus, factors such as the block geometries, surfaces, contours, block functions and precision of the compaction results of the customer products as well as the machine types and the logistics in the concrete production facility are crucial to optimising the mould technology. The impetus comes from the research and development department which was situated at the head office in Lengenfeld in 2006. As well as strategic projects, current technologies are also under test at the Kobra Competence Centre. Production at Kobra is subjected to continuous improvement.

Under the brand names elements [Power] and [Feature], technologies and accessory variants in mould manufacturing are again found in the main business area (Figure 1). Kobra offers six product families to which the principle technologies in the mould bottom are assigned and currently four optional accessory features which relate to the whole mould.



*The new brand for Kobra's main business*

## **Kobra Elements [Power] »Basicline«**

The Power »Basicline™« is the classic paver shape for low product heights in a sturdy, rigid, complete assembly. Inserts

and frames are made from block material and connected in the particularly stable mould bottom by a small number of welding seams. In some cases, mould bottoms are carbo-hardened complete in one piece. Most of the old frame components are reusable.

## **Kobra Elements [Power] »Solidline«**

The classic mould for high products is the Power »Solidline™«. The insert and frame are »Optimill™« milled and completely welded. Two versions are available where »Solidline2™«, which is the new standard for hollow block moulds, differs by the combination of insert and frame. With this version, both the insert and the mould frame are nitro-hardened. This hardening method gives the product its dynamic and durable characteristics since all the welding stresses in the insert and the entire mould bottom are neutralised by this sensitive process.

## **Kobra Elements [Power] »Moduline«**

This product family uses technologies which are particularly flexible in regard to the exchangeability of wearing parts and the reusability of frame modules for medium to high pavers. With all the versions which are available, the inserts are connected to the frame using bolts which can be undone so the inserts can be easily replaced. The frame consists either of four horizontal bolted frame components where the insert is supported on all sides in a tongue and groove or two horizontal flange modules which can be bolted on



# KOBRA

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**KOBRA**  **ELEMENTS**

with welded-on guide rails (Figure 2). A third version has a frame which is closed all around. In this case, among other things, the insert and frame are bolted vertically. All the wearing parts are »Opti-mill™« milled and hardened.



Modern mould technology. The Kobra »Moduline2« with bolted flange module

### **Kobra Elements** **[Power] »Boltline«**

This mould technology for curbstone, block and tumble stones, which is available in two versions, is of bolted frame design but differs by the structure of the inserts. Particularly in the case of the single row, hollow and solid block moulds, carbo-hardened insert components are fitted and bolted into the frame. The inserts of multi-row curbstone, full block and tumble stone moulds are welded throughout and usually nitro-hardened before they are supported in

### **Kobra Elements** **[Power] »Dynamic«**

The "oscillating insert" technology for pallet machines in the Kobra »Dynamic™« moulds for pavers and high products has successfully proved in the market since 1996. Either completely machined or welded and hardened, the insert is held by a trapezoidal profile all round in the bolted frame. Better compaction results are achieved by improved vibration behaviour particularly for customer's products which are flat, difficult to fill or closed-end-optimised. Alternatively, with

the Power »Dynamic2™«, Kobra offers an oscillating insert supported on round bushes for flat and high concrete blocks.

### **Kobra Elements** **[Power] »Replace«**

The Power »Replace™« is the quick-change system for small batch products. One frame can take different inserts (which are usually nitro-hardened) via wedge clamping. This is a simple technology which does not require the use of bolts.

Power »Individual™« is the Kobra division for special and separate moulds.

### **Kobra Elements** **[Feature] »Singlebolt«**

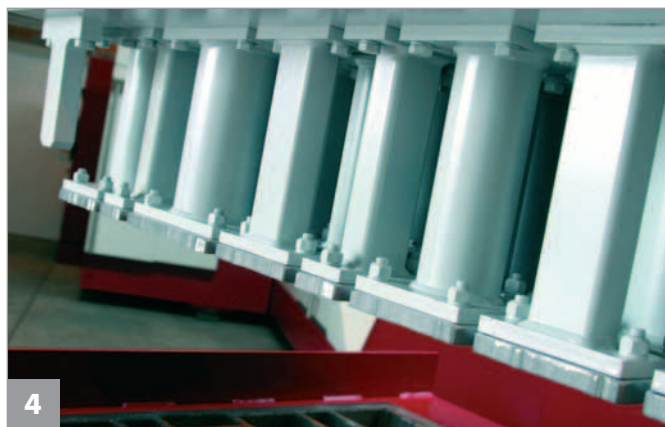
In 2004, Kobra Formen GmbH reached a milestone in mould construction by introducing the one-piece tamper. Since then, welded and broken tampers on the tamper head plate have been a thing of the past (Figure 3). The individual parts of the standard tamper no longer blunt one another but are connected by form fit. The vibration forces during compaction are dissipated better and more directly, which means that higher damping values can be achieved than with conventional technologies. The tampers, which are bolted on, also have a stabilising effect on the entire tamper head structure and are easily replaced during repairs (Figure 4).

### **Kobra Elements** **[Feature] »Multigroove«**

On request, Kobra will fit mould inserts with a retaining system exclusively for the



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a picture of the  
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*Kobra »Oscillate« – optional platform for carrying acceleration measurement sensors*

multi-layer producer – the Feature »Multigroove™«. The customer can choose from different versions where cavities are CNC-milled into the walls of the mould before the hardening process. The advantage of this product lies in the all-round hardening since there are no hardening breaks caused by subsequent adjustments to the layer of blocks.

### ***Kobra Elements [Feature] »Flexshoe«***

This accessory detail is a bolt-on plate on an oscillating support for tamper shoes. It is available as an option and may produce better compaction results during the production of large concrete blocks and slabs on pallet machines.

### ***Kobra Elements [Feature] »Oscillate«***

Kobra integrates this feature in Power »Dynamic™« moulds as standard. One prerequisite for subsequent servicing or the attachment of machine control systems is a prepared platform for acceleration measurement sensors. It is also available for all technology variants from the mould builder as an optional accessory feature (Figure 5).

The feature »Individual™« contains customised special and individual accessories outside the standard range.

Kobra will continue its bid to stay ahead of the competition through strong market orientation and closeness to working practice. The company is committed to pursuing technical market trends according to the demand and continuing to set the technological benchmark in the industry. A consistent, structured approach to research and development has been recognised as the foundation of innovative solutions for standard and tailor-made products. New materials, alternative material combinations and technologies will have a crucial role in the compaction and demoulding behaviour of concrete block moulds and production in concrete production facilities.

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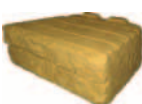
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