

Heidelberger Druckmaschinen

High-Precision Series Production –
A Press Is Born

HEIDELBERG

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The Heidelberg Production
Network at a Glance ▶▶▶

The Heidelberg Production Network at a Glance

> Input



More than 100,000 tons of iron- and steel-dependent parts per year



1,700 tons of aluminum per year



7,200 m² (250,000 ft²) of wood for packaging per year

> Output

Prepress



Platesetters

> Suprasetter thermal plates

Press



Presses in the 35 cm x 50 cm (14 in x 20 in) and 50 cm x 70 cm (20 in x 28 in) format classes

- > Printmaster QM 46 and GTO 52
- > Printmaster PM 52
- > Speedmaster SM 52
- > Printmaster PM 74
- > Speedmaster SM 74
- > Speedmaster CD 74



Presses in the 70 cm x 100 cm (28 in x 40 in) format class

- > Speedmaster SM 102
- > Speedmaster CD 102
- > Speedmaster XL 105

Presses in the new 106 cm x 145 cm (42 in x 57 in) and 120 cm x 162 cm (47 in x 64 in) format classes (as of mid-2008)

- > Speedmaster XL 145
- > Speedmaster XL 162



Global network with international suppliers

Approx. 1,500 international suppliers and partners deliver individual parts and also provide complete system components and development. Outsourcing accounts for some 60 percent.

Heidelberg:

High-Precision Series Production



High-tech on the assembly line – in the Heidelberg production network, some 8,500 employees manufacture approx. 65 printing units per day. More than 80 percent of these are exported.

From customer inquiry to ready-to-use offset printing system: The Heidelberg production network

On each working day around the world, some 60 billion A4 pages – excluding newspapers – are printed for booklets, brochures, forms, beverages labels, packaging, picture books, or encyclopedias. Most of these are printed using the offset printing method in high quality, vibrant colors and with a variety of different finishes. And in all probability, using a press manufactured by Heidelberg. With a market share of more than 40 percent, Heidelberg is the world's leading solution provider in sheetfed offset printing. The company generates more than 80 percent of its sales outside Germany.

To achieve quality prints, an offset printing press has to apply a color image to a sheet with an accuracy of one hundredth of a millimeter over a distance of at least ten meters. The series manufacture of these complex presses is a huge feat of technological and industrial engineering that can only be achieved by highly qualified employees with many years' experience. They ensure that a perfect end product is created. A Heidelberg press is a high-tech device consisting of up to 100,000 parts and components. The work carried out throughout the production chain is accurate to within a thousandth of a millimeter and error-free. The end product, which consists of up to 50 tons of cast iron and electronics, has to function with greater precision than a Swiss watch.

This brochure describes the various steps from the customer inquiry to ready-to-use press, and offers an insight into core areas of expertise, commitment to innovation, and the quality system in the world's largest offset printing press factory. Components with Heidelberg know-how such as side frames, cylinders, gears, rollers, and electronics are manufactured in the company's own production network at sites in Amstetten, Brandenburg and Wiesloch-Walldorf. Some 60 percent of the components are obtained from development partners and approved suppliers, or as standard parts from the market.

With the exception of one small- and medium-format series of presses produced for the Chinese market in Qingpu near Shanghai, Heidelberg assembles all of its presses at the Wiesloch-Walldorf site to meet worldwide demand. Highly skilled staff construct each press in the factory, test-print it, and subject it to other thorough tests. The press is only allowed to begin its journey to the customer when it has fulfilled the strict Heidelberg quality criteria.



“Training Heidelberg Employees Guarantees our Success.”

Stephan Plenz, head of the Heidelberg production network, speaks about quality requirements, competitiveness, and core skills at the world’s largest press factory

Stephan, why is press manufacture so difficult?

Offset printing uses extremely fine ink dots that have to be arranged in an exact pattern. This places incredible demands on the precision of an offset printing press. It uses a printing unit to apply each process color onto an ultra-thin sheet of paper or bulky cardboard – with up to 18,000 rotations per hour and with an accuracy of one hundredth of a millimeter. To achieve this, a vast amount of know-how is required – ranging from material technology and mechatronics to control technology and aerodynamics.

How high are the precision requirements for the press?

We integrate tens of thousands of parts in an offset printing system. The software controls up to 600 drive axes and 300 pneumatic parts. The cast iron brings stability. Tolerances on a scale of one thousandth of a millimeter – one sixtieth the width of a human hair – and exact interaction of the mechanical and electronic parts accurate to within a millisecond ensure the required level of precision.

How is it possible to organize production of this kind cost-effectively?

Quality is only affordable when you series-manufacture high-tech presses on a production line. Manufacturing at Heidelberg is divided up into parts families in order to achieve quantities, standardize operations, and keep special machine tools working at full capacity. In Amstetten, the bases, side frames, and cylinders are cast and machined, while Brandenburg produces the bars and rotational parts, and Wiesloch-Walldorf the cams, gears, grippers, and electronic parts. We also assemble all of the presses and a platesetter family there. Since 2006, we have also been producing presses and folders at our Chinese site in Qingpu for the local market.

Can these skills be copied easily?

No. They are based on detailed planning, enhanced with many years of experience. A product as complex as ours can only function properly when all areas cooperate with one another.

What is the greatest trump card for Heidelberg?

Our success is guaranteed by our highly skilled employees, and our machine tool park is also vital. However, the crucial factor is our know-how of the printing process and the key areas within the networked production and



assembly processes. This know-how is stored in many heads. The team spirit, commitment, and mutual striving for perfection at Heidelberg are key. Our mindset is firmly rooted in quality. It embraces an understanding of – and the dexterity needed to create – an extraordinary, highly complex product that purrs in many thousands of printshops each day like a busy sewing machine. It is the passion for printing that sets Heidelberg apart and makes Wiesloch-Walldorf the world champion of press series production.

On the subject of networking, what is your most important internal interface?

Above all, development. That is where new requirements and technologies are taken up that increase customers' competitiveness. It also has to be possible to produce and assemble new parts cost-effectively. Our construction and development consultants transfer the knowledge that we gather here in production to development.

What is the production philosophy at Heidelberg?

The name Heidelberg stands for quality. We want to be the best press producer worldwide. Our number-one principle is the zero error strategy. But we also face cost and time pressures. We want to produce the best machines efficiently and cost-effectively.

How is the quality of the end product checked?

We carry out systematic checks along the entire process chain and only pass on error-free products to the next station. No press leaves our factory before it has been completely constructed and has passed all the quality tests.

How extensive is vertical integration at Heidelberg?

We ask ourselves whether to “make or buy?”. Are we better at manufacturing a particular part? Is that our core skill? We manufacture some components ourselves because of the insufficient quality or the cost of those on the market. Take the high-precision surfaces, for example. We buy in around 60 percent of the parts. Our suppliers produce in line with our development and quality requirements.

What does globalization mean for you?

For Heidelberg, which has an export share of more than 80 percent, it is a chance to secure our competitiveness. We buy in whenever it's sensible to do so. Nevertheless, when it comes to dynamic production, proximity is an advantage that should not be underestimated.

Will Heidelberg continue to produce in-house at the company's existing sites in 10 or 20 years' time?

Yes, I am convinced that with the right system, and by tapping the potential that exists in Germany, we can continue to produce sensibly for a long, long time to come – while also continuing to produce in China.







The Pace of Production is Shaped by Specific Customer Orders

Heidelberg determines demand, equipment, requirements, and trends in close consultation with customers. When a customer orders a press, the production planning system transfers the required components and materials on schedule to the stations on the assembly line.



Close customer contacts help predict demand for presses. By the time the customer's order arrives at the Market Center, the parts for the customer's machine will already have been finished. The components for this order are sent to the assembly line in accordance with production planning.

It all Starts with the Customer

Order management as the connecting interface between markets and production.

High-tech Heidelberg offset presses are series-produced. Not for stock, but for particular orders. The range of formats and versions – from the universal press to the customer-specific configuration – is just too varied for ‘one size fits all’ solutions. It all starts with the customer's inquiry – for example, for a Speedmaster CD-74 ten-color, with perfecting device and two coating units. The press has to be delivered four months after the order is received. However, if manufacturing of the thousands of parts required for this press were only started at the touch of a button at this time, the press would only be ready for shipping seven months later at the earliest. Customers cannot wait that long. In other words, production has to be one step ahead.

Heidelberg Order Management provides the link between markets and production. Together with the local sales and service units, product management, and production and controlling, it writes the success story in the world's largest press factory. Seismographic market analysis and close customer contacts help forecast demand for the next two years, and ensure assembly is supplied with the necessary parts for day X after receipt of the purchase order. The aim is to identify the medium-term trends of the 200,000 printshops from some 170 countries and to implement them in a consistent, flexible production system involving around 8,500 Heidelberg employees and another 3,500–4,000 at the supplier's sites.

A cascade planning run at the touch of a button. Heidelberg experts distill their planning figures and aggregate the facts each month on the basis of inquiries, overall trends, and occurrence probabilities. Parts and component manufacture are still based on forecasts by the Heidelberg sales and service units. The management team agrees on the delivery quantity. Now the cascade planning run can begin at the touch of a button. Based on the configuration key codes within the bill of material, the demand planning software lets the parts demands rain down on the several manufacturing plants and sub-suppliers. Production programs are scheduled based on a monthly statistical average of printing units per product line. This allows production to meet all requirements within certain flexibility limits.



A fiery scene – at a temperature of 1,400 °C, the gurgling molten iron flows like water into the mold. Small parts take four hours to cool down, larger parts 24 hours and longer.

The precision requirements placed on the metal cylinders are so high that many measurements have to be performed in a conditioned room. A cylinder is allowed a maximum inaccuracy of less than the width of a thread of silk over a distance of up to two meters!

Hot Conditions for the Birth of a Press

Heavy metal from Amstetten – high-precision bases, side frames, and cylinders provide a stable foundation

A Heidelberg press enters the world in the blazing furnace at Amstetten – the foundry is one of the 15 largest in Germany and among the most modern in Europe. The 1,250 specialists from the Heidelberg heavy metal section manage the production of cast parts across the entire range from 150 grams to five tons. In five smelting furnaces with a power of up to eight megawatts, the “five star chefs” wearing their fireproof aprons prepare the metal melt. Work is busily underway in the high-tech mold bakery, too. When they receive orders from assembly in Wiesloch-Walldorf, the workers set about producing casting molds from more than 2,300 tons of sand-resin mixture for all Speedmaster and Printmaster series.

The raw part takes shape. Each of the up to 65 pairs of printing press side frames produced each day travel along the manufacturing line in Amstetten together to achieve absolutely consistent results. The mechanics lend shape to the side frames in 35 specially developed production groups.

The cylinders are the cornerstone of a printing unit. They transport either ink or paper. Specialists in more than 60 state-of-the-art manufacturing centers work hand in hand. A double spindle machine mills 14 mm (0.6 in) of cast iron at a single stroke. It takes great dexterity to achieve perfect results for the channels for the gripper bars or to grind the pins and print areas. The cylinders are sent to an external specialist for anti-corrosion coating. The operators regularly subject all parts to quality checks.

It is here, at the starting point of press production, that the way is paved for high print quality. Any errors that occur cannot subsequently be ironed out. Each year, 57,000 tons of cast iron, 34,000 press side frames, and 70,000 cylinders are produced in this way. At the end of March 2007, Heidelberg produced the one-millionth cylinder at its Amstetten factory. Since the factory was commissioned in 1985, the annual volume has more than doubled. Every day, three to four rail cars carrying up to 220 tons of material leave the Amstetten plant, and are ready for unloading in Wiesloch-Walldorf two and a half hours later.



Key technology for offset printing – the production of Rilsan rollers.

Rilsan is a polyamide which plays a key role in the press because of its extremely smooth surface, its ink transport properties, and its elasticity. Surface roughness, concentricity, and cylindricity have to be accurate to one hundredth of a millimeter.

The Parts Millionaire

Technology and dexterity – mechanical manufacturing in the Brandenburg plant

With around 9,000 different shafts, rollers, and flat and profiled parts, the Brandenburg plant manufactures a huge construction kit for Heidelberg presses. Some 40 percent of all components produced in-house come from here. Each month, around 730 skilled, highly responsible and quality-aware workers – many of them highly specialized – produce around a million workpieces that offer maximum, verified precision. Most of the 10–15 processing steps per component in Brandenburg take place on the 270 CNC-controlled machine tools, including mostly lathes, mills, drilling units, and grinders. However, there is no substitute for dexterity and experience. In the meantime, parts – such as ceramic-coated rollers for an ink fountain roller which takes up the ink paste from the ink fountain in a thin film – are sent to an external processor. The core of the ink fountain roller is produced in the Brandenburg factory. It is plasmacoated by a contractual partner. The final smoothing and polishing is a core Heidelberg skill.

Among the key products “made in Brandenburg” are the Rilsan rollers, which apply a metered film of ink onto the printing plate. A Rilsan roller consists of a tube and two pins that an operator interconnects by means of friction welding. In this process, the machine squeezes the metal tube with several tons of pressure against the rotating pin. The frictional heat acts like a welding torch. The skilled worker then carries out the first lathe operation, degreases the part in a washing machine, and roughens it on a grinding stand. In the coating process, an operator at the next station heats the roller to a temperature of around 300°C and immerses it in a Rilsan powder bath. The powder melts on the hot roller surface, forming the plastic coating. After cooling, an operator turns the one-millimeter thick plastic film to 0.5 millimeters (0.020 in) and grinds it smooth. His trained eye is crucial for quality control because there is no electronic measuring instrument for this. Each day, a total of 37,000 parts are sent from production in Brandenburg to assembly in Wiesloch-Walldorf in two to four tractor trailers.

Seven Stages at Once



From small to XXL – the range of gears extends all the way up to models with a one-meter diameter.

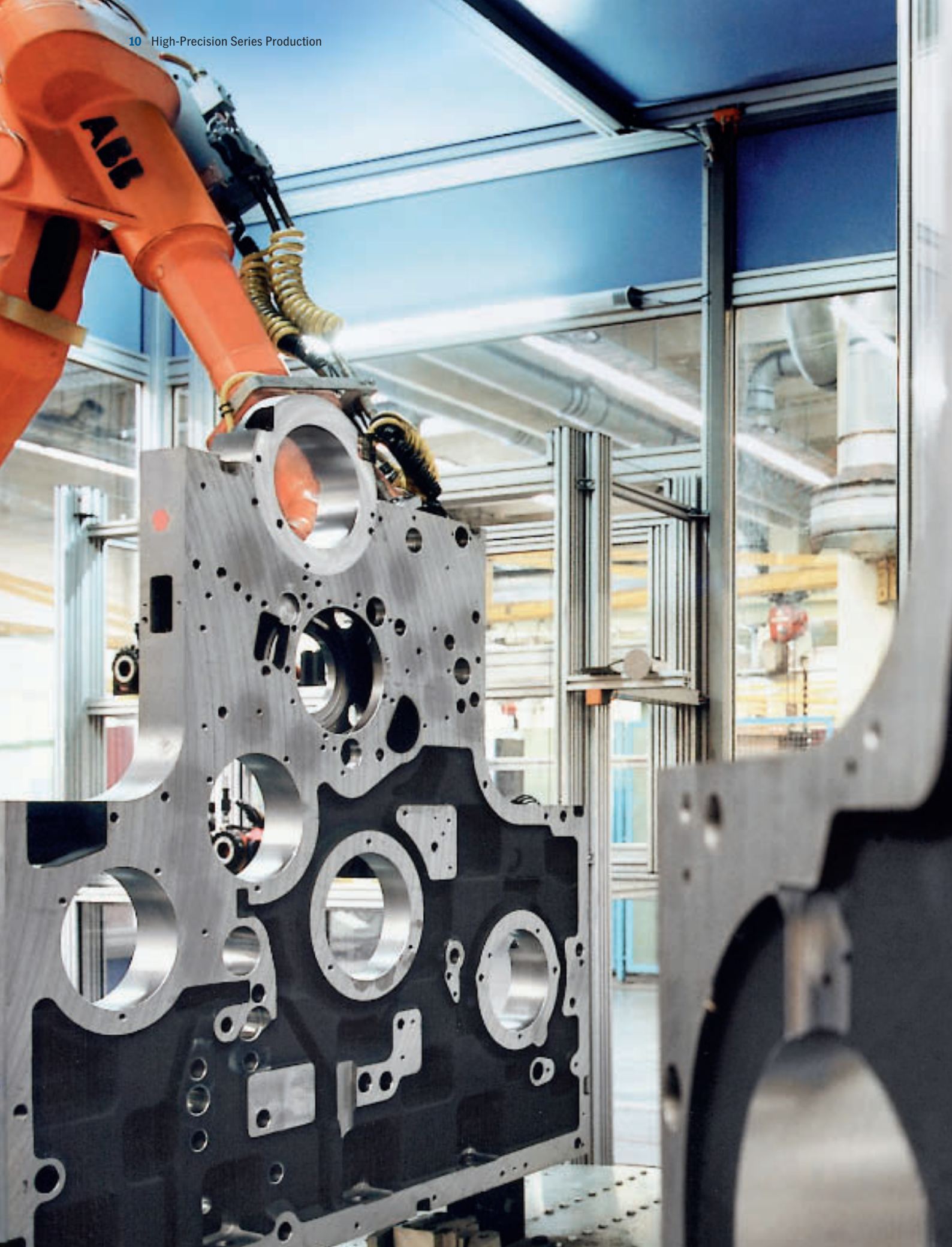
Some 30–40 percent of a press consists of electrical and electronic elements, closely integrated with mechanics and bristling with know-how. For this reason, Heidelberg operates its own electronics production facility at the Wiesloch-Walldorf plant. Each year, this factory and its 350-strong workforce supplies around 3,000 control systems and 600,000 printed circuit boards.

Better, faster, more innovative – manufacturing at the Wiesloch-Walldorf plant

Music for metal lovers is provided by the giant manufacturing halls, housing an orchestra of murmuring and clattering drives of drilling, milling, and grinding machines and plants, fitted and synchronized by 1,450 specialists who are skilled with their instruments and bring the huge musical score of production to life. Over 300 machine tools and manufacturing centers – arranged in a cellular pattern in the soccer-field-sized halls 3, 4, 8, and 12 – need to be controlled in order to execute the operations on schedule. Each day, the specialists calculate the optimum sequence using the production planning system. The operators at the workstations report the latest status of manufacturing by reference to the checked, error-free batches.

The skilled workers and engineers channel **around 6,200 orders** through the manufacturing areas in Wiesloch-Walldorf each month and forward them to assembly – for example, gripper bars and gripper pads for transferring the sheet of paper, and a wide range of cams, rotational parts and gears. This amounts to a total of 38,000 workpieces per day from a range of more than 10,000 part numbers. Previously, the operatives had to carry out up to a dozen manual steps – each performed individually – when producing complex components. Nowadays, metal processing maestros easily manage six or seven process steps “at a stroke” using production units – which brings a time saving of up to 70 percent without any reduction in quality.

For example, a production group for gears can machine a part, check the result, and correct the settings. Before grinding, the machine positions the gear in such a way that the same quantity of material is removed in all areas and the tool is subject to an even load. The grinding wheel that removes the width between the teeth can move into action in live operation and create at least five widths in each operation instead of one. The sensor, which was developed in conjunction with a specialist company expressly for this purpose, measures the gear axially and identifies runout to within two-hundredths of a millimeter – this is the world’s first machine to incorporate this function. Beforehand, the employees had to measure all gears in full on the test station, whereas now samples are sufficient. On average, the processing times has fallen from 15 to 3 minutes.



Perfection in Sight

Heidelberg employees are highly trained and act on their own initiative within a system of production targets and quality criteria. Specialized machine tools, such as this one used for deburring a printing unit side frame in the Amstetten plant, help to meet the very highest precision requirements.





Market success through innovation – even with purchased components. For many electromechanical assemblies and devices – from the control cabinet to the paper sheeter – Heidelberg relies on development partnerships with companies and research institutes.

The Best on the Market

Heidelberg purchasing integrates development partners and suppliers into the production chain

A Heidelberg high-tech press contains thousands of parts, technology, and know-how from a variety of disciplines. The company's own resources are concentrated on its core areas of expertise and combined with purchased parts. Before each decision to invest in its own manufacturing, Heidelberg management asks itself whether to “make or buy?”. Mechanical parts made of sheet steel or plastic, standard screws and cable harnesses, but also high-grade systems such as electric motors, lasers, IR/UV dryers, and pneumatic and dampening solution systems are also available on the market. But do they meet the Heidelberg quality requirements? The Heidelberg purchasing department is tasked with identifying and selecting the best suppliers for the necessary parts and services. This is a complex area with a vertical range of manufacture of around 40 percent.

What is the “best” offer? For buyers, best price is not the sole criteria. After all, they are also responsible for ensuring smooth functioning of the logistics and supply system in press production by integrating the supply partners fully into the processes. Suppliers must identify with the principles of the Heidelberg production network, such as the zero error strategy, and also apply them. The “best” offer is based on a bundle of criteria such as quality, competitiveness, flexibility, and reliability. Suppliers and their production are regularly evaluated. There are around 650 of them in press series production, and a further 850 in the auxiliary and process materials, replacement parts, and services sectors.

Heidelberg procures more than 50,000 parts from suppliers. That amounts to approx. 140 million electronic components, 490,000 motors or even 7,200 m² (77,500 sq ft) of wood for packaging per year. A good two-thirds of suppliers are based in Germany – and the global purchasing network is growing.

Quality from the Outset and All the Way Along the Line



Testing equipment also has to be tested – even micrometers or setting gauges made of hardened steel wear out and might then deliver incorrect readings when measurements are being taken on a scale of a hundredth or thousandth of a millimeter.

Many processes are so reliable that samples are sufficient. Unevenness reduces the quality of the print image on the paper. Consequently, the radial run-out and surface properties of the cylinders are checked. An optical checking system developed in-house identifies “every dust particle.”

Heidelberg relies on its team of responsible employees and secure processes

The name Heidelberg stands for quality. Quality is not a final state, but a continuous process that can only be driven forward by skilled and motivated employees. Quality begins in the mind – and is fuelled by passion. For perfect presses that deliver optimum printing results. For performance that delights customers. Only those who can recognize and evaluate quality can also produce it. Heidelberg attaches great importance to the fact that employees are aware of the significance of error-free products in the production chain, identify with their objectives, and monitor the results of their own precision work. No test system alone, no matter how sophisticated, can discover all the errors that may have occurred in the preceding steps.

Quality checks involve costs. However, poor-quality parts resulting from inadequate quality checks can lead to much higher costs. If any critical issues, which might restrict the quality of the entire machine, occur, risk management requires 100-percent checks.

A shared understanding of quality forms part of the design. After all, it is critical to be able to implement designs in manufacturing. Representatives from production and assembly work hand in hand with developers from the outset and define the key characteristics. Quality is expressed not only in products and services but also in the reliability of the processes, and in how quickly problems can be identified and resolved.

Quality, therefore, requires a systematic approach. This is provided by around 150 Heidelberg experts. They describe and monitor the quality processes, run a measuring, material, and print measuring laboratory, verify the quality of Heidelberg suppliers, and further develop the system. On the way striving for “zero-defects” there are clearly defined KPIs for determining quality and progress, such as the number of defects per machine (ppm – parts per million), the percentage of error-free installations of presses (first pass yield), or the number of service hours after installation at the customer site. Ultimately, this results in an overall performance rating for the factory which enables Heidelberg quality to be quantified for continuous internal improvement.



In the loop: the “ITS” tractors receive their orders by radio over a WLAN transport control system. Each day, 800 material pallets are taken to their destinations in around 200 journeys, while the empty containers make the return journey. Hall logistics distribute the components – for example using driverless transport systems that run via induction loops in the hall floor.

The Right Place at the Right Time

Wiesloch-Walldorf plant logistics – a “large train station” for 60,000 different parts

Here, everything is in constant motion. Each day, four to six rail cars carrying castings both large and small roll out of the Amstetten plant, and around 100 trucks set off with steel parts from Brandenburg and components from external suppliers headed for the storage and distribution center in Wiesloch-Walldorf. The assembly lines in the world’s largest press factory need constant replenishing.

Some 200 Heidelberg logistics specialists work in three shifts at the factory. They manage around 60,000 different parts and components for press assembly and ensure each one arrives at the right place at the right time. Hall 40, the central store, is the main material distributor. It supplies a huge organism – planned down to the very last detail – with around 40,000 part numbers, controlled by the quantity structure of the production planning system. A flood of 2,500 consignments arrives each day. Employees identify, inspect, and monitor the material. Metal parts undergo special surface treatment known as black oxide. After 26 immersion baths, a black corrosion-protection film is formed.

Automation is king in the high-rack warehouse. The journey then moves on to the high-rack warehouse. Around 30 meters (100 feet) high and divided up into 12 lanes, it holds 32,000 pallet bases. The computer calculates the optimal usage of space, and the automatic stacker takes care of the rest. Some vehicles deliver high-quality individual parts such as bases, side frames, cylinders, cooling units, or air supply cabinets in the required packaging directly and exactly on time to the assembly line.

The transport specialists send around a third of the material that assembly calls up from the high-rack warehouse under computer control on pallets on conveyor belts around ten meters (33 feet) above the plant to key points – mainly to hall 6, the largest assembly area at the site, and the main paint shop. The hall logistics specialists receive the packages there using a type of freight elevator. Each day, some 500 containers leave the high-rack warehouse in this way on this transport system. The operators of the Internal Transport System “ITS” deliver two-thirds of the material to the 17 “stations” at the plant.

The Emergence of a Gigantic Clockwork Mechanism ...



The “fingertips” of the paper transport system – a specialist in preassembly adjusts the gripper systems on the cylinder. The gripper pads have a hardened metal surface ground with great precision so that the paper is not damaged when being passed through the press.



Network of cable harnesses and control elements – approved control cabinets are sent just-in-time to the installation location in press assembly.

All Heidelberg presses are assembled and test-printed in the Wiesloch-Walldorf plant – 15 presses per day

Hustle and bustle all around. Around 70 percent of the production area at the Wiesloch-Walldorf plant is occupied by assembly. More than 2,000 employees put together the gigantic clockwork mechanism in thousands of steps and with the approved quality – it is the largest collection of specialist know-how and experience in specialist mechanical engineering in the world. All the parts intermesh like a precision timepiece. The series of images from page 20 onwards shows the key scenes.

The spacious factory accommodates a maze of activities. The workstations, assembly lines, shelves, and stands are a hive of activity. Supply shafts run underneath the hall roof. Material is being supplied from all directions. The plant logistics system takes the tens of thousands of parts ordered on the production system – ranging from castings, cables, and tubes to shafts and rotational parts – through the warehouse or from the supplier just-in-sequence to the point of assembly. Stackers with large parts pass by. Supply vehicles go about the business of filling shelves, coordinated by the software-based job control system.

Electronics – the central “nervous system” of a press. In the neighboring hall, engineers and assembly workers build the electronic circuit boards, control cabinets, and control systems for all the press series. They form the “central nervous system” of an offset printing system that sends, receives, regulates, and controls signals in hundreds of components with a precision of one thousandth of a second, covering everything from motion, air pressure, color, acceleration, speed, and water to electricity, sensors, heat, and cooling. Critical know-how lies in this close interlinking of mechanics and electronics.

Cutting-edge technology shapes the manufacturing and assembly lines, including the SMT pick and place machines (Surface Mounted Technology). Tiny components are inserted into belts that travel like an endless conveyor belt. A robotic revolving head deftly picks out twelve components at a time from the reel belt and places them carefully onto the circuit board. In the high-tech assembly processes, specialists put together cable harnesses, sensors, and batteries of printed circuit boards for press control cabinets, which at the end of the processes are subjected to a five-hour start-up and test program at the end of the processes.



Tools and Material Under Control

What is the most cost-effective way of assembling printing units such as those here for the Speedmaster XL 105 in the Wiesloch-Walldorf plant? How can workstations and processes be organized efficiently? The best solutions developed by the Heidelberg teams become the standard for all.





Heat expands metal – as there is no play between the cylinder bearing bush and side-frame bore, the bore is expanded using a heating device. The side frame expands and allows a minimal amount of space for a moment.

... Step by Step

The limit of what's technically possible

“Within a hair’s width” is an everyday synonym for absolute precision. However, in press construction, the diameter of a human hair is much too imprecise for many areas. Precision requirements to within a thousandth of a millimeter are required for a press from Heidelberg. And there are gradations even on that scale. Workers have to screen the ceiling lights for specific working and measuring procedures because the irradiation from the sun stretches the material and corrupts the measurement. There are no technical aids for many setting procedures and fine gradations. Operators have to rely on their own dexterity and many years of experience.

It takes highly skilled staff to manage these requirements, which push the limit of what’s technically possible. Precision is multi-dimensional. Gears and bearings need to be paired up correctly to the cylinders. They have a major impact on paper transport in the press and thus printing results on paper.

More precise than production allows. Parts are married on the basis of dimension groups – gears on a scale of hundredths of a millimeter, bearings on a scale of thousandths of a millimeter. And it is not just a question of roundness but of conicity and torsion on the longitudinal and transverse axes at the cylinder journal. Since these precision requirements are so high that they cannot be met with any production methods, operators measure the gears on a microscale and compensate for deviations from the ideal by “marrying” two parts that cancel each other out.

Press assembly begins with the preparation and assembly of the cylinders. The teams assemble the side frames in parallel. This is followed by connecting the side frames to the base – the “chassis” and “bodywork,” so to speak. Then it is the turn of the cylinders, ink fountain roller, and shafts. Finally, the printing unit is aligned, and the ink fountain is installed, checked, and adjusted.



Intermeshed like a precision time-piece – the most precise adjustment is required because a main drive provides the moving parts with torque.

Assembly staff master processes that can extend over 3,000 minutes. The printing unit is sent to an assembly line. It moves one step forward every 40 minutes. Preparatory preassembly work is performed in parallel to the lines. The fitters accompany “their” printing unit along the line. In four sections, skilled workers add cables, washup devices, electrics, and pneumatics. The final stage consists of a printing unit test lasting two hours.

Simultaneous to printing unit assembly, the feeders that will feed sheets of paper to the printing units are also assembled. The workers place the frames on pallets, move them like shopping carts along the material shelves, and install electric motors, pile chains, and control consoles. Nearby, their colleagues assemble the deliveries that take the printed sheet from the press.

The next step is final assembly of the press – depending on the order, it might consist of several printing units, coating units, dryers and peripherals. The heavyweights have to stand for ten hours on a reinforced concrete base. The concrete then sags up to 1 mm (0.03 in) and no longer yields – and the fitters can put together the printing units, each weighing six tons, with complete accuracy.

Tuned like a philharmonic orchestra. Now the “conductors” determine the timing. They test-print each Heidelberg press, check the gigantic clockwork mechanism thoroughly, and tune the philharmonic orchestra, which comprises thousands of electrical pulses and mechanical adjusting wheels, to ensure a perfect and enduring performance in the printshop. Following successful “zero error” testing, the workers dismantle, clean, and conserve the press, and package the valuable pieces for worldwide dispatch.

Despite the enormous quantities of equipment in assembly, each day 35 trucks leave the plant carrying around 15 presses – it is rare for two completely identical presses to be built. This is an indication of the complexity of sheetfed offset systems and the flexibility with which the Heidelberg production network can adapt the versions and functions of its products to meet customer requirements.

High-Precision Series Production

High-tech production on the assembly line –

a Heidelberg press is a gigantic mechanical

and electronic clockwork mechanism.

Up to 100,000 parts and components have

to function error-free with finer precision

than a human hair. In the Heidelberg pro-

duction network, approx. 8,500 specialists

manufacture and assemble around 65 print-

ing units each day in a network of integrated

workflows and combine them into highly pro-

ductive sheetfed offset printing machines.

Keeping pace with the market – It takes time to manufacture thousands of high-precision parts and combine them into a complex press. To ensure that the customer receives the required press in time, Heidelberg begins series-production of the parts on the basis of backed-up forecasts. The “script” on the following pages shows how the components are put together to form a press.

The making of a press

- 1**
> Parts manufacturing and purchasing
- 2**
> Printing unit assembly
- 3**
> Final assembly
- 4**
> Test-printing, final inspection, and dispatch

Amstetten

Competence center for casting and machining bases, side frames, and cylinders



Wiesloch-Walldorf

Competence center for manufacturing mechanical and electronic components such as gripper bars, gears, cams, and control systems



Brandenburg

Competence center for rotational parts such as shafts, rollers, and flat and profiled parts



Qingpu (Shanghai), China

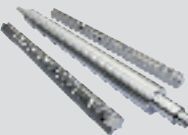
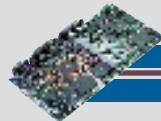
Production of standardized folders and presses for the Chinese market



1 > Parts manufacturing

Networked Efficiency

Heidelberg produces around 40 percent of the parts for its high-tech presses in-house, especially precision parts made of metal and know-how-intensive components such as the press electronics, which are crucial to the quality of the end product. In order to achieve cost-efficient quantities and utilize the special machine tools to full capacity, systematic division of labor is required in the Heidelberg production network.



> Parts manufacturing and purchasing

1

Parts purchasing

Heidelberg purchases around 60 percent of its parts from approved suppliers or development partners who contribute their specific know-how. The range of products comprises everything from standard screws, compressed air units, and control cabinets to drives, cables, and infra-red or UV dryers.

Logistics

A sophisticated logistics system uses material sluices and transport sprinters to transfer the exact required parts from among the tens of thousands of different versions from the store to the assembly areas. The selected parts are sent just-in-sequence directly to the assembly location on the line at the right time.

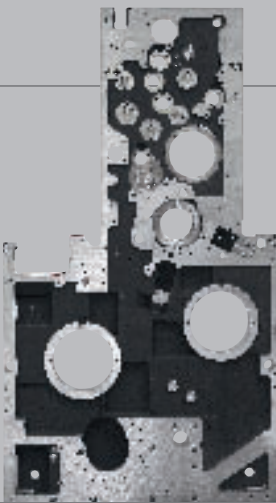
Customers Have the Choice

The press is configured exactly in line with customers' requirements. Some two months before delivery, work begins on preparing the cylinder and side frame for an actual press. Since the precision requirements are on a scale of thousandths of a millimeter, the parts first have to acclimatize in the assembly hall. The working teams then measure the gears and bearings on a microscale and align the precision-engineered components in all directions. In the picking area, the finished components fall into line in the assembly sequence. The parts are then assembled one after the other.



2 > Printing unit assembly

> Cylinder construction > Side frame assembly > Swivel station > Place printing unit onto the assembly line > Printing unit assembly on



The side frame brings powerful forces under control

Heavy and highly precise – the side frame brings stability to the press. Fit devices such as chain guides and bearings for inking units and cylinders. Connect side frames to the base. Align and connect metal parts. Draw in cross-bars to lend support to the printing unit “skeleton.” Fit cylinders, distributor cylinders (for ink distribution), ink fountain rollers (to meter the ink), and shafts. Align, check, measure, and adjust printing unit.



Cylinder – the hub of the printing unit

Carry out a 100-percent quality check of the cylinder surface when the delivery is received. Prepare and assemble paper-feeding cylinders (with a gripper system) and ink-feeding cylinders (without a gripper) for installation in the printing unit. Needle-bearing cages need to fit the bearing bush and surface of the cylinder to half of one thousandth of a millimeter.

Zero error strategy – a press cannot be restored back to health at the end of assembly. Only fault-free printing units reach the final assembly stage.



The Heidelberg press assembly specialists master up to 3,000 minutes of work content. Technical aids are no substitute for their dexterity and experience.



four lines > Feeder and delivery assembly

> Printing unit assembly

2



The printing unit continues to grow ...

Position printing unit with cylinders onto the assembly line. Move it forward every 40 minutes. Carry out preassembly work in parallel to the lines. Section one: Gear assembly. Bring the cylinders into line with one another to ensure exact paper transport. Section two: Assemble system. Adjust front and pull lays and the low pile assembly. Section three: Fit the oil and lubrication lines, assemble the ink fountain and blanket washup device.

... on the moving conveyor

Section four: Install electrics and pneumatics, install cable harnesses, set safety devices and limit switches. Afterwards, an automatic printing unit test lasting two hours: Activate valves and actuators – electromechanical components that become active in a closed loop to maintain predefined target values. Subject the printing unit to pneumatic/electrical testing.

Take the feeder and delivery and add paper

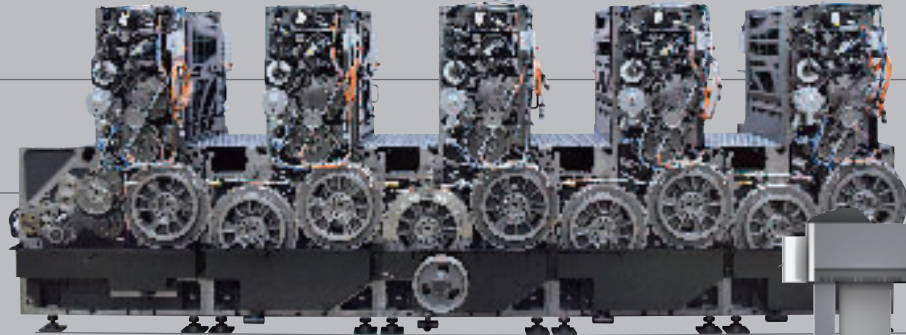
Simultaneous to printing unit assembly, assemble the feeders that will later feed sheets of paper to the printing units. Install electric motors, pile chains, suction heads, sheet stops, air supply tubes, and control consoles one by one. Assemble the deliveries, which will later receive and deposit the printed sheets from the press, in the synchronized box at the stand.

Made-to-Measure Press

Printing units, coating units, dryers, feeders, deliveries, peripherals, control cabinets – the Heidelberg employees in final assembly put together made-to-measure presses for customers. Precision plays the key role here, too – up to 16 units of a press, each weighing six tons, need to be assembled absolutely parallel with each other. To ensure that the ink dot lands on the image with complete accuracy even up to the last printing unit.



3 > Final assembly

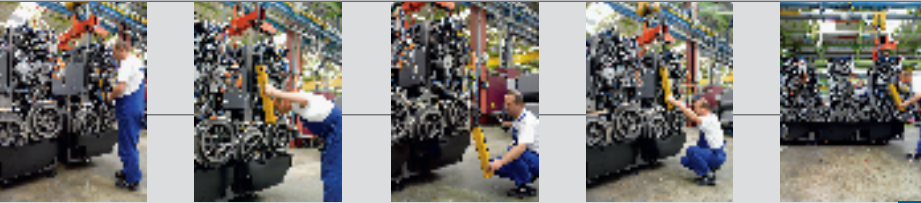


Reinforced concrete floor gives just 1 mm

Depending on the press type and weight, assembly needs a 25 to 60 cm (9.84 to 23.62 in) solid reinforced concrete base for the floor surface. Printing units, feeders, and deliveries need to stand on the floor for around ten hours. The concrete then sags up to 1 mm (0.03 in) over several meters. It does not give any more. Only then can the workers begin to put the modules together.



A Heidelberg press is filled with electronics and electrical systems that precisely regulate and control the interaction of tens of thousands of mechanical parts to the exact millisecond.



3

> Final assembly



All test records and reports are collated for the Heidelberg production team and the customer in a document folder.

Tuning the Instruments for the Musical Score

No Heidelberg press leaves the factory without having been assembled and test-printed. Depending on the complexity involved, it is tested over several working days from head to toe – for example, to check for streaks and dot gain, and also to analyze vibration. Test-printing is like constructing a musical instrument – the press is fine-tuned on countless setting wheels so that the customer can bring its musical score to life.

Maestros at work – the specialists identify if a problem on the print sheet is caused for example by the gripper or a gear. In this fine-tuning process, the settings are made on a scale of thousandths of a millimeter.



4

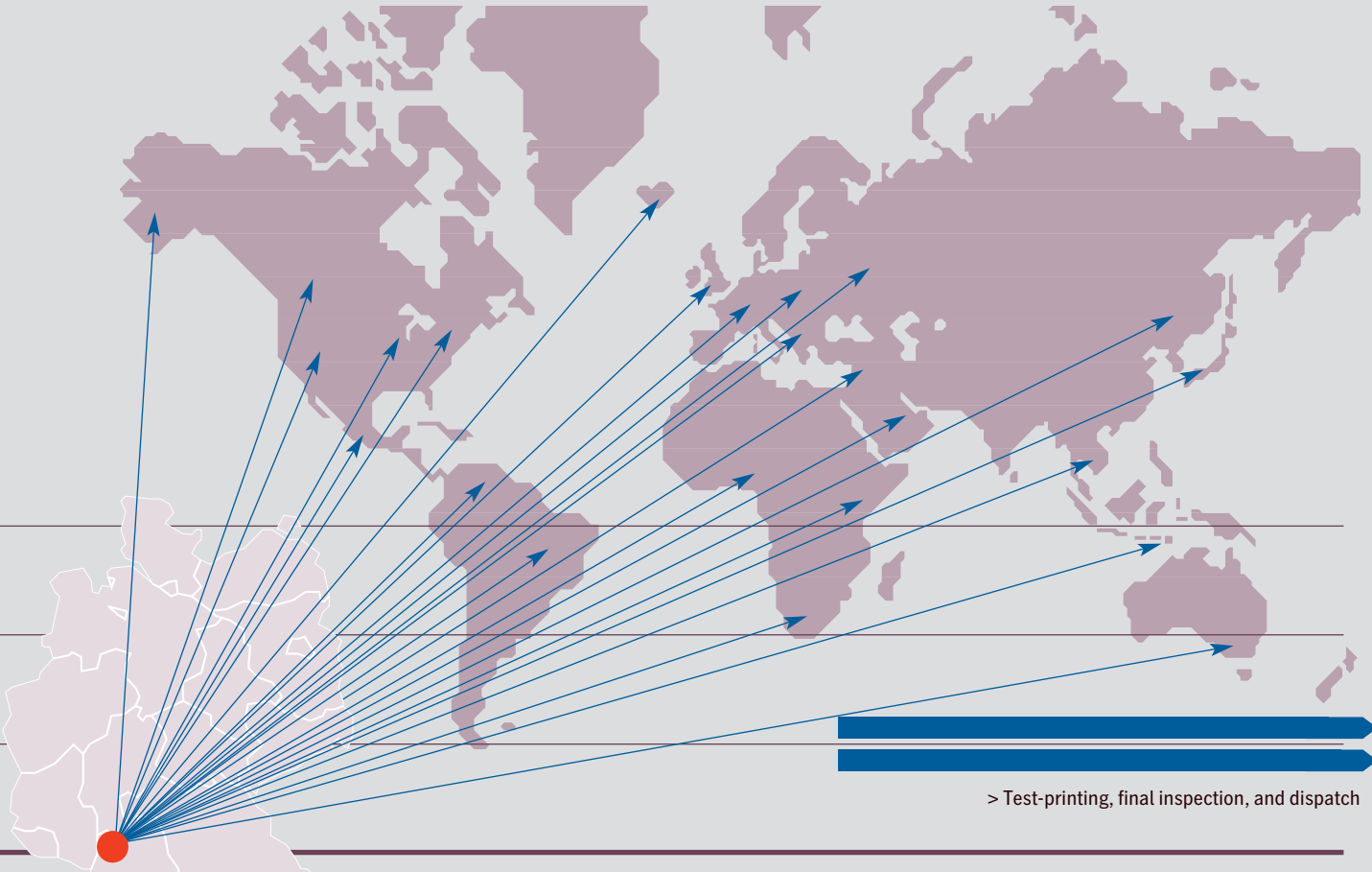
> Test-printing, final inspection and dispatch



The final act follows successful testing – specialists dismantle, clean, and conserve the press, and package the modules for worldwide dispatch.

Presses for the world:

Heidelberg sells more than 80 percent of its sheetfed offset printing systems outside Germany. Its customers include 200,000 printshops in 170 countries around the world.



> Test-printing, final inspection, and dispatch



By water, land, and air

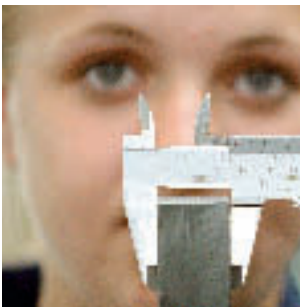
Many Heidelberg presses take to the high seas. Around 50 percent of the consignments are carried by truck from the Wiesloch-Walldorf plant to Gernsheim, where they travel in a sea container along the Rhine to Rotterdam and then to their various destinations. The land transportation is carried by truck to the national companies in Germany, France, or Austria. Air transportation is only used in exceptional cases.

Learning from the Bottom Up

People as a success factor – training at Heidelberg is top priority



On-the-job training included – in special learning centers, production trainees learn how to use their tools in real conditions and under the direct instruction of experienced workers. Heidelberg has received several awards for this training concept, including the “Training Oscar” awarded by Wirtschaftsjuvenen Deutschlands.



It is a challenge to understand the mechanical and electronic anatomy of a press. The materials, technologies, software, hardware, finishing, and assembly processes involved in constructing a printing system are subject to constant change. As a result, the job profiles and requirements in the extensively automated production cells and assembly lines also change constantly. Training is a key concept for company success. Employees who have acquired experience and know-how “from the bottom up” at Heidelberg are essential for developing and manufacturing leading technology for the global market. Heidelberg has traditionally attached great importance to training. The proportion of trainees is at a constant level of six percent. The majority of shop-floor employees – up to 90 percent of trained specialist staff – are recruited from the company’s own trainee program.

A total of 13 different career paths and five vocational college courses are offered to the 780 young people by Heidelberg in technical and commercial careers. The range of careers includes everything from industrial engineering to electronics engineering, and from IT sales to printing. During their two-year basic training, the young people practice and train on a project- and process-related basis – learning, for example, how a cylinder is assembled. Or how the material flow functions using the Kanban system. Or how to optimize their own workplaces and initiate improvement processes. All in all, training takes between two and a half and three and a half years, depending on the nature of the training and the learning objective. Alongside technical skills, instructors and colleagues develop the young people’s ability to think and act independently. At the same time, a process of socialization takes place on site. Trust is built, and the young employees develop a sense of identification and loyalty. However, demographic change is increasing competition for the workers of tomorrow. There are fewer schoolchildren and fewer qualified applicants. To safeguard the supply of specialist recruits, Heidelberg encourages an interest in vocational training – and in the many vocational development possibilities offered by a large company – among young people at an early age by offering taster days and internships, career presentations in schools, and training information days in the company.

Fit for the Future



The Heidelberg “sports network” – employees have joined together to form various training teams that allow them to run, swim, cycle, or walk together. One of the highlights is the huge run organized by the company in Wiesloch-Walldorf once a year.

The average age of employees is increasing – maintaining fitness and know-how is a lifelong task

The demographic cocktail is a potentially explosive one – in a good ten years, 50 to 54-year-olds in Germany will be by far the largest group represented in the workforce. At the other end of the age pyramid, which is increasingly being turned on its head, there is a lack of fresh talent – a key issue for companies’ competitiveness. The changes in the age structure are unmistakable even today. In 1992, more than 6,000 specialists worked at the German sites in the Heidelberg production network. At that time, the average age of the workforce was 35.1 years. It has now surpassed 41. In response to this development, Heidelberg launched the “FIT” program.

Innovation and commitment are not a question of age. Qualification and ongoing training have always been central to success at Heidelberg. Against a backdrop of faster innovation and the growing number of areas where innovation is needed, specialist workers require fresh know-how, not only to master the latest areas of development but also to keep up with the continuous improvement processes. In view of the demographic changes taking place, that also requires new forms of learning – 15-year-olds have a different approach to learning than 55-year-olds. The way in which the workplace is set up is another vital factor. Experts analyze whether workstations, especially those in production, are suitable for older employees, and consider which technical and organizational changes need to be made.

Employees will also need to remain fitter longer in future in order to withstand the “marathon” of a longer working life. This responsibility, which ultimately safeguards employees’ ability to work, lies with employees themselves. However, Heidelberg provides comprehensive support. The action area “Health” aims to stimulate greater awareness of body, spirit, and soul. It primarily deals with preventive measures, but also provides help with illnesses in the form of meetings and courses. The canteen offers special menus to help with “nutrition and exercise.” Experts also provide nutrition and exercise advice that staff can immediately put into practice in their company sports events.



Optimized Down to the Last Detail

Final assembly and fine-tuning a Speedmaster XL 105 in the Wiesloch-Walldorf factory. A highly productive, competitive high-tech press from Heidelberg – the result of continuous improvement processes and joint efforts to boost quality.





What is required to create a more efficient workstation? To determine the optimal dimensions and layout of the workstations, the workers have constructed tools and furniture with cardboard, scissors, and adhesive tape, changed them and moved them around, and discussed and improved the ideas in the team.

It is not enough to perfect a process and then forget about it. New tasks require new, optimized solutions. For Heidelberg employees, thinking about working content and working processes is part of the challenging jobs they face every day.

Building on Our Lead

Employees are using the Heidelberg production system HPS to organize improvement processes in their factory

Changes are becoming more frequent and new technologies are being developed all the time. Cost pressure is rising. There is competition for customers and they are placing new demands on presses. Press production has to deal with a wide range of versions and parts. Demand for space is growing, organizational costs are increasing, and delivery times are becoming shorter. Series production has to become more flexible if it is to remain cost-effective. And that is not possible without the correct processes and streamlined structures. Heidelberg is therefore pushing a change process to deliver further developments to the production system, thereby ensuring it uses the best the company has to offer – namely, the know-how of employees to generate intelligent solutions for quality and efficiency.

In order to be the best press factory in the world, operate effectively and cost-efficiently, and build on our lead, one factor in particular is essential – the avoidance of waste. Products have to be error-free. Production has to flow consistently. There is potential for improvement in a thousand technical details. And in the working processes. This begins with things that are apparently “straightforward,” such as the toolbox. Which tools are actually required? It takes time to locate a tool in a full, untidy toolbox. Staff therefore cleared out and rearranged their toolboxes. What is the best way to organize material supply? The parts are delivered to the skilled workers at their stations in the right quantities and at the right time. Success is motivating – staff experience the direct effects of their suggestions at their workstation. And good ideas are rewarded. The Heidelberg production system HPS provides a framework for this culture of continuous improvement. HPS management records the best solutions, develops them into a standard, and rolls them out in all areas. HPS is therefore used to keep labor costs competitive, achieve clearly defined productivity increases, boost product quality further, and safeguard jobs at Heidelberg.

Better, Faster, Cheaper



Deep insights – a researcher determines the composition of the materials using a scanning electron microscope. It enables the sample to be magnified 300,000 times. The 4-cm-long (1.5 in) edge of a box of matches would thus appear 12 kilometers (7.5 miles) long.



Endurance test – the latest materials and surfaces, e.g. for grippers and gripper pads, are continuously optimized for practical use.

Technical development is introducing the latest methods to press production

New technologies are lending greater force to Heidelberg production. Cost leadership and technology leadership are two sides of the same coin. Defining the most cost-effective production methods for offset printing systems is one of the key tasks of technology development. Around 40 highly qualified Heidelberg specialists in technology consulting, value analysis, knowledge management, and technology projects are adopting new findings and methods. They work closely with the development, production, and assembly departments to put them into practice in production and to develop functional materials and surfaces.

It is not the idea that is the innovation, but rather the product that enters series production. In view of the complexity, range of parts, and density of technology in a press, employees have to possess special attributes that go beyond mere specialist know-how – above all creativity and endurance. And the well-developed ability to work on their own initiative. The ultimate goal is always to transfer the concept to series production. And in view of the range of versions and technical complexity in the various press series, coupled with the zero error goal, that is an extremely challenging feat of engineering.

The key to success is to bring the know-how of Heidelberg, its suppliers, and development partners together and systematically check the practicality of innovations – even those from other industries. For example, expertise and endurance contributed to the development of a new platform for the water containers of the dampening unit across the different formats. They were produced from stainless steel and provided with plastic insulation to ensure that the water remains at a constant temperature. Welding the fittings was a time-consuming process. The idea was to change over to plastic technology. Now insulation foam is hot-stamped onto a plastic container and additional control elements are integrated directly in the plastic mold. This new technology not only cuts down on outlay, it also extends the range of functions available. In other words, this innovation was the result of an in-depth analysis of the situation.



An Unerring Eye for Quality

Heidelberg passes on nothing but error-free products – both to colleagues in the downstream stations in production and to end customers. A Heidelberg press only leaves the plant when it has passed the stringent quality criteria in comprehensive tests.



Complex work content – the in-depth assembly training program for Chinese specialists ensures the high quality of the presses, no matter where they are produced.

First Heidelberg Production Site in Asia

Presses and folders for the Chinese market are produced in Qingpu near Shanghai, China

China has the fastest growth in the world. Sales in its 100,000 printshops are recording double-figure growth rates. As the standard of living increases, so do the quality requirements – and the investments in high-quality sheetfed offset presses. China is already the third largest sales market for Heidelberg, after Germany and the U.S. The world market leader employs a staff of around 600 there, mainly in sales and service. Several factors have persuaded Heidelberg to establish its own assembly site in China – its first in Asia. These include China's incredible market growth, logistical factors, and the benefits of being close to the market.

In September 2005, a Heidelberg pilot team in the Qingpu industrial zone near Shanghai began to assemble a series of folders and carry out preparatory work for a press. Even setting up a standard assembly line highlighted the complexity of the work content, the integration of the production processes, and the huge demands placed on staff.

From the outset, the focus has been on systematic training of staff. At the same time, purchasing experts began to look for and approve suppliers and parts in accordance with the high Heidelberg standard. Chinese specialists came to the assembly department in Wiesloch-Walldorf for several months of in-depth training. Meanwhile, German specialist and management staff trained employees in Qingpu for assembly processes, organization, synchronization and quality requirements. Following their training in Germany, the Chinese specialists return to China and support the German trainers. On an area covering 6,200 m² (66,750 sq ft), folders are now produced in Qingpu for the Chinese market. In the large neighboring hall, which measures 11,000 m² (118,400 sq ft), specialists assemble small- and medium-format presses. For the time being, the most important parts will still be sent from Germany. In the medium term, the aim is for Chinese suppliers to provide 80 percent of the parts.

Precise Start, Perfect End Results



Heidelberg without heavy metal. In total, 75 employees produce up to 1,200 platesetters a year. The manufacturing time is 50 to 60 hours per unit.

Prepress and postpress complete the Heidelberg process chain in sheetfed offset printing

Prepress is the first stage of offset printing. High-precision plate imaging paves the way for high print quality. Heidelberg has built up know-how in this sector by developing its own, innovative laser head in the Suprasetter platesetter and uses special software to link up the prepress, press, and postpress machines in a single system.

A polymer coating is applied to printing plates. A laser beam is used to expose ink-accepting dots. A 70 x 100 cm (27.56 in x 39.37 in) printing plate has seven billion squares. The imaging time is 60 seconds. If the beam is not perfectly accurate, the image will be blurred. Platesetters are Heidelberg machines without heavy metal. However, they are subject to the same quality and precision criteria. The assembly lines in Wiesloch-Walldorf use sheet steel and aluminum parts. 80 percent of parts are provided by approved suppliers.

Postpress gives the product the final touch, e.g. through adding product samples or using sophisticated shapes – be it using folds, wire binding, folding carton gluing or perfect binding. This is where the print products take on their final shape as brochures, paperbacks, or leaflets. Some 1,350 Heidelberg specialists develop and build the requisite machine systems, such as saddlestitchers, perfect binders, thread sealing machines, folders, mailing systems, die-cutters, and folder gluers at the German sites in Ludwigsburg, Mönchengladbach, and Leipzig and the plants in Sweden, Italy, China, Slovakia, and the U.S. 90 percent of the components are produced by external partners.

A folder may be less complex than a press. Nevertheless, folding is anything but a straightforward matter. The machine has to comply with tolerances down to hundredths of a millimeter when folding sheets of paper. Concertina folds, such as those used for a twelve-page leaflet, require technologically demanding solutions – for perfect end results.



Extensively tailored to customer requirements – Heidelberg concentrates its resources on planning and assembling folders at the Ludwigsburg site.

Facts and Figures

0.000001

meters or a thousandth of a millimeter is the tolerance for the key parts and components in a high-tech offset press. Heidelberg specialists therefore go to the limits of what's technically possible – and measurable.

8,500

highly qualified employees make up the Heidelberg production network, more than 90 percent of whom have undergone specialist training. The experience and know-how that are distributed and developed in the network of engineers, technicians, electronics engineers, software specialists, developers, and specialist staff are the key success factor at Heidelberg.

100,000

different parts and components and more can be installed in a state-of-the-art Heidelberg sheetfed offset press. Nowadays, Heidelberg constructs press systems with up to 16 printing and coating units.

400,000

printing units – that's how many Heidelberg has produced in the 50 years since the opening of its Wiesloch-Walldorf plant in 1957. With a market share of more than 40 percent, Heidelberg is the world's market leader in sheetfed offset presses.

1,000,000

cylinders – that's how many Heidelberg has produced since the opening of the new site in Amstetten in 1985. A Heidelberg cylinder weighs between 20 kilograms and five tons. The commemorative cylinder delivered in March 2007 provides top performance in a Speedmaster SM 52 used by a Heidelberg customer in Spain to produce high-quality printed material.

If you want to find out more about the Heidelberg production network, detailed information can be downloaded at:

www.heidelberg.com

The History of the Heidelberg Production Network



1957 Tiegel

The original Heidelberg platen press with a format of 26 cm x 38 cm (10.24 in x 14.96 in) – the “Tiegel” – was produced until 1985.



1972 GTO

The GTO with its series design printing units and an output of 8,000 sph has given its name to an entire format class.



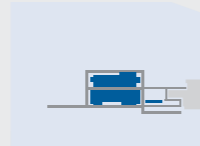
1974 Speedmaster

Introduction of the Speedmaster 72 four-color press as the first model of the new Heidelberg offset generation with a speed of 11,000 sheets per hour. The following year sees the world premiere of the Heidelberg two-color Speedmaster SM 102 with the facility for switching over to perfecting printing.



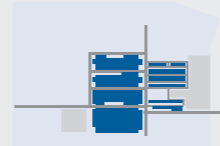
2004 Speedmaster XL 105

The Speedmaster XL 105 with the specially developed Hycolor inking and dampening system ensures fast inking up, and produces 18,000 sheets per hour in continuous operation to set new standards in high-end sheetfed offset.



1957

Foundation >>> 385,000 m² (4,150,000 sq ft)



1967

Development >>> 650,000 m² (7,000,000 sq ft)



1977

Growth >>> 740,000 m² (7,950,000 sq ft)



1987

Automation >>> 800,000 m² (8,600,000 sq ft)



1997

New dimensions >>> 860,000 m² (9,250,000 sq ft)



2007

The History of the Heidelberg Production Network



1957

Production started in two halls, each measuring 252 meters x 70 meters (827 ft x 230 ft), where Heidelberg manufactured platen (“Tiegel”) and cylinder (“Zylinder”) letterpresses.

March 17, 1956:

Negotiations with the municipal authority of Wiesloch.

April 1956: Start of construction:

300 people were involved, including 80-man teams of masons, some of whom also worked on Sundays. Pile foundations were dug 7 meters (23 ft) deep.

14 months later, the factory was completed.

July 5, 1957: Official opening.



1971

Aerial shot from 1971: Two large assembly halls and various buildings have been added since the start of production in Wiesloch in 1957.



1988:

Halls 6 and 10 inaugurated for assembly of the large- and medium-format classes.



2007

The site is renamed Wiesloch-Walldorf. Opening of hall 11. Heidelberg assembles the new, large-format Speedmaster XL 145 and XL 162 press generation in the 35,000 m² (380,000 sq ft) hall, which spans almost five soccer pitches.



August 16, 1985:

Official opening of the foundry in Amstetten.



1992

Start of production at the Brandenburg plant.



2006

First production site of the Heidelberg group in China/Asia.



The History of the Heidelberg Production Network

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