

Appendix 05_INT

Heidelberg Production System (HPS)

Processes und methods used in the Heidelberg production

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Integration of suppliers into the Heidelberg Production System – why?

Heidelberg Production System? That describes the production processes at Heidelberg – what does it have to do with suppliers?

About 60 percent of components are purchased from special development partners and qualified suppliers or as standard parts from the market. HPS is an integrated production system that encompasses and coordinates all processes related to production. As a set of instructions on technical, logistic and organizational aspects of the manufacture of products along the value-added chain, this system naturally includes the suppliers. They supply what the customer needs, in the required quantity, quality and order so that the customer can process it right away with maximum efficiency.

The best price is not the only criterion we focus on. Procurement is an integral part of two of the most important core processes at Heidelberg – the formation of a press system (product life cycle process) and the logistics and supply system (supply chain management) of production. This means that the suppliers must identify with and apply the guidelines of the Heidelberg Production System, such as just-in-time delivery, the zero fault strategy and continuous improvement.

Suppliers must prepare for:

- A more precise synchronization of processes
- More flexibility regarding the time of the calls for delivery and the quantities requested
- Integration into standardized supply processes
- Supply of fault-free and reliable products to Heidelberg

- Ability to deliver products directly

The HPS contributes significantly to Heidelberg's competitiveness and helps to safeguard jobs at Heidelberg and its suppliers.

The Production System at Heidelberg, why?

The Production System at Heidelberg? Our production has always been effective, well thought-out and systematic, hasn't it? Yes indeed, but now we'd like to network everything that we have been doing so well and correctly into a holistic production that optimally interconnects and aligns all Heidelberg production processes. The advantage of an integrated system like this is: a global system has now been created to replace coexisting different methods and procedures. This ensures that the best solution is implemented more consistently – that is, systematically and across all areas.

Our goal is: to be the best printing press manufacturer worldwide.

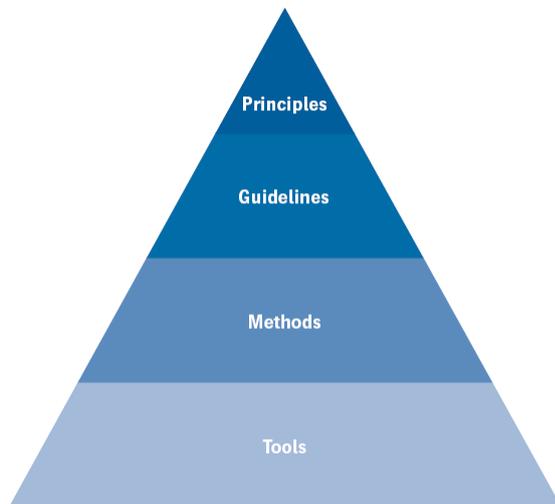
The Heidelberg Production System is the binding guideline for achieving this goal. It is a technical, logistical and organizational guide for manufacturing products that all meet the Heidelberg standard of excellence – as a system of principles, guidelines and methods, leading to effective and economic production.

We don't want to reinvent the wheel. We are, however, using a system to ensure that production at Heidelberg continues to improve, helping us extend our lead over the international competition.

1. Structure of HPS

Our Production System is based on five principles, each with its own guidelines, methods, and tools.

The Heidelberg Production System



Illus.1: Structure of the Heidelberg Produktion System

2. Principles and guidelines

The five principles describe the Heidelberg approach for optimally designing our production activities. The guidelines help us implement these principles in a consistent manner. They provide instructions that all Heidelberg employees in all areas must follow.

Synchronous production

The principle of synchronous production is aimed at smoothly linking together the entire production chain, from our customers to our suppliers.

Final assembly is synchronized with customer demand. In the same way, each upstream operation gears its speed of production to the requirements of its downstream customers. This means that large lots are no longer produced as buffers and stored for subsequent processes. Instead, all processes are synchronized throughout the chain – materials are always on the move. This makes production is significantly more efficient.

Zero-defect strategy

The zero-defect strategy requires every employee to take responsibility for actively helping to ensure the flawless quality of all Heidelberg products.

We must always pay attention to quality.

Our commitment is to ensuring that all our products meet our customers' expectation that they will receive flawless products.

Management by objectives

Only someone who has and pursues clearly formulated objectives can be successful. This is because business success is measured by objectives. The management-by-objectives principle is consistently implemented as a standard throughout the entire production chain at Heidelberg.

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Continuous improvement

Continuous further development means striving to find opportunities for improving the current Heidelberg production standards. Questioning the status quo is the basis for further development and finding new opportunities. The crucial prerequisite for this is willingness to change. This is the only way to creatively come up with better ideas.

Efficient working structures

An organic whole succeeds through efficient networking. Our production activities are organized based on this approach: all production units consistently comply with the process standards applicable at any given time.

Goal-oriented guidelines

The clear and goal-oriented guidelines provide all employees with the necessary support for improving the quality of production. This makes them an essential element in the Heidelberg Production System. For each principle there is a guideline that defines concrete maxims for action.

Tools are clearly defined, understandable, easily applied resources for implementing methods. Because there are so many, they are not described in greater detail in this brochure.

3. Methods and tools

The principles are supported by methods. The consistent application of these methods ensures that tasks and issues are dealt with in a standardized and optimal way.

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	<p>The heart of production beats to the customer's drum.</p> <p>We adjust our production capacities to our customers' needs while gearing output to downstream requirements.</p>
	<p>We strive to provide our customers with perfect products.</p> <p>Our processes are designed to build quality into each and every product. Our goal is to avoid defects in the first place; however, when mistakes do occur we systematically learn from them and continuously improve our processes.</p>
	<p>We lead with objectives.</p> <p>Each and every one of our employees is empowered to take responsibility for their work in alignment with the objectives that we have jointly established.</p>
	<p>We improve ourselves continuously.</p> <p>We work constantly to improve our skills, processes and technologies. We implement the best solutions in all areas.</p>
	<p>Our working structures and processes ensure maximum efficiency and productivity.</p> <p>Each and every one of our employees is empowered to take responsibility for their work in alignment with the objectives that we have jointly established.</p>

Illus. 2: The guidelines describe how to act upon a maxim

Synchronous production	Zero-defect strategy	Management by objectives	Continuous improvement	Efficient working structures
				
<ul style="list-style-type: none"> Flow-line assembly Process-oriented manufacturing Kanban Just-in-Sequence (JIS) Coordinated planning and scheduling Supplier integration Integrated customer order processing 	<ul style="list-style-type: none"> Quality planning Reliable testing and production Equipment Product inspection Quality control Supplier quality management 	<ul style="list-style-type: none"> Leadership principle Goal agreement process Employee review and evaluation process Performance-based remuneration 	<ul style="list-style-type: none"> Problem-solving techniques Idea management Lifelong learning Process of continuous Improvement Innovation management Production-oriented product design Value-stream optimization 	<ul style="list-style-type: none"> Flow line assembly Process-oriented manufacturing Teamwork Standardization Production planning and time management Visualization

Illus. 3: The Heidelberg Production System at a glance

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Flow-line assembly

The products “flow” along the assembly line from station to station. Materials are provided as close as possible to the assembly location – this reduces transport distances.

Kanban

Production requests from a downstream operation are made using the two-bin system or Kanban cards, which perform the central control function.

Just-in-Sequence (JIS)

The just-in-sequence system is primarily used to supply version-specific components or capital-intensive parts in sequence, i.e. at precisely the time when assembly takes place and in the correct order.

Process-oriented manufacturing

Production is organized into self-reliant production units (PUs). Each of these PUs contains all machines and assembly workplaces required for complete processing of their parts. The PUs also perform additional functions for planning, coordination and quality control for the parts and components to be manufactured.

Coordinated planning and scheduling

In an advanced planning and scheduling system, all activities to be carried out by a production department are assigned to the corresponding customer orders and distributed to the available resources on a daily basis. This coordinated capacity planning helps us make customer deliveries on schedule.

Supplier integration

The involvement of suppliers in an integrated process that extends beyond the company ensures optimum supply of the Heidelberg Production System.

Integrated customer order processing

Customer orders are efficiently processed from the first quotation to invoicing, by integrating all units involved in the process: from the SSUs (Sales and Service Units) across order management all the way to assembly and service.

Quality planning

We plan how to meet quality expectations today, tomorrow, and in the future. In accordance with the Quality Gate policy, quality planning involves defining and implementing the quality attributes of products, functions and processes. Each year the expected quality performance of production – i.e. the “first passed yield” and quality-related costs – is adjusted with the aim of achieving continual improvements and meeting changing customer expectations.

Reliable testing and production equipment

Throughout the production process, only suitable and therefore quality appropriate production and testing equipment is used. This ensures that components are produced in line with specifications. Periodic inspection of all equipment guarantees that it complies with quality standards.

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Product inspection

Product inspections are an integral part of production. Checks make it possible to recognize and correct any faults during production. The results are used to optimize processes. Each department is responsible for the quality of the products it manufactures.

Quality control

We measure the quality and results of our processes continuously using a KPI measurement and audit system. If deviations from the planned quality are identified, corrections are carried out immediately, and steps to prevent them from occurring again are introduced. To implement measures across different areas, we apply interdisciplinary quality control loops. This is our understanding of quality management.

Supplier quality management

Supplier quality management means evaluating suppliers to check whether or not they can meet our quality demands. Only qualified and approved suppliers may deliver to Heidelberg. Binding targets for quality performance are agreed on. The "Preferred Supplier Card" is awarded to certify achievement of the targets.

Leadership principle

The leadership principle at Heidelberg governs how objectives are agreed on and implemented and the results sustained. It also describes how directives and functional requirements made by corporate management should be met in everyday work.

Target agreement process

Within the scope of the target agreement process, the corporate strategy is translated into operational targets and set out in a detailed agreement known as a Balanced Score Card (BSC). Employees then receive binding instructions geared to their level. The effectiveness of measures initiated to achieve objectives is checked by regular reviews (at least every quarter). If necessary, further action is discussed.

Employee review and evaluation process

At least once a year, employees hold a confidential one-on-one meeting with their direct supervisor to evaluate the quality of their work and the extent to which they have achieved their goals.

Performance-based remuneration

When remuneration is performance-based, a personal evaluation by the supervisor of the employee and the concrete results of their work is one of the things considered for setting the salary.

Problem-solving techniques

Problem-solving techniques provide support for solving problems systematically and permanently. This is made possible through a structured approach comprising well-defined, coordinated steps.

Idea management

Effective idea management inspires employees to bring their own ideas to the table. These are checked quickly and unbureaucratically for efficiency and feasibility. Proposals that are implemented are rewarded. Suggestions for improvements can refer to products or processes.

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Lifelong learning

Lifelong learning is a systematic and needs-driven process for improving skills. This enables employees, teams and departments to master existing and new professional and social challenges in working life. Lifelong learning is supported by training and further education, development of potentials, and further development of the organization. In the annual employee-supervisor meetings, each employee and his or her supervisor discuss development and learning objectives.

Process of continuous improvement

Continuous improvement is an ongoing task for all employees. The emphasis is on a step-by-step optimization of production processes and product quality, instead of on sudden leaps ahead driven by innovations. A significant contributor to success is quick implementation of improvements.

Innovation management

Innovation management refers to all activities and methods that support the innovation process at Heidelberg, and provide an environment in which innovations thrive.

Production-oriented product design

Right from the product development phase, the requirements of production must be taken into account as fully as possible, and production-optimized product designs ensured. We take our responsibility to ensure fast, competent advice for our developers seriously, so as to positively influence the manufacturing costs at an early stage of the product development process.

Standardization

Efficient work structures mean that production is defined consistently in terms of standardized facilities and processes – and follows these every step of the way.

Standardization refers, for example, to production equipment and processes, rigs and tools or software components; the standards established are mandatory for all Heidelberg production plants. They are systematically further developed.

Teamwork

A team's members are assigned complete, self-contained tasks along with the required powers, and are responsible for their respective subprocesses; the supervisor leads the group, and agrees on targets with the team.

Production planning and time management

Workflows are planned in advance, and are described precisely. Systematic and consistent time management is an elementary component of production planning. Among other things, it forms the basis for capacity planning and productivity analyses.

Visualization

Standards and deviations from the process must be made visible to all persons involved. Visualization allows employees and management personnel to recognize immediately whether or not processes procedures are being followed.