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production manager

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Contents

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Model-based dynamic monitoring and end-point control of converter process online in PSI*metals*

Optimised use of energy and resources

Producing steel in a BOF converter is a very expensive and energy-intensive process. Energy consumption is influenced by various chemical, physical and thermal factors during treatment; the same is true of material usage in terms of the amount of materials added and the timing of these additions. For optimal energy and resource efficiency, the provision of online information about the actual and predicted process behaviour is required. The dynamic process model developed by the VDEh-Betriebsforschungsinstitut (BFI) for online monitoring and control of the converter process has been integrated into PSI*metals*, allowing a heat-individual adaption of optimal process conditions. First results are now available from its use at the Saarstahl AG steelworks.

Energy and resource usage can be optimised by precise control of the blowing process and by managing the amount of added materials and the timing of these additions (see "BOF converter process" box). The aim is to achieve the target values for steel and slag analysis (particularly regarding carbon and phosphorus contents) and the tapping temperature as accurately and cost-effectively as possible.

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News ticker

+++ Cleaning specialist Kärcher banks on PSI – PSI*wms* warehouse management software to control logistics processes in the expanded logistics centre +++ PSI receives new orders from the Vallourec Group – PSI*metals* for the finishing mill in Youngstown, Ohio, and the new forge at Changzhou +++ PSI to supply new network control system for the city of Muscat – Muscat Electricity Distribution Company, SAOC, opts for PSI*control* +++ PSI wins an additional traction power supply order in the Netherlands – new central PSI*control* control system to replace four existing control centres +++ PSI receives supplementary order from Müller-Technik – plastics injection moulding specialist's logistics centre to be equipped with PSI material flow calculator +++ PSIPENTA controls maintenance processes for Airbus 340 at SR Technics – MRO service provider opts for Planning, Execution and Control (PEC) online +++ PSI wins order from 50Hertz Transmission – network calculations for operating the 380/220 kilovolt transmission network +++ PSI receives logistics order from Würth Elektronik eiSos – PSI*wms* warehouse management system optimises existing warehouse processes +++ PSI supplies new energy trading system for N-ERGIE – consolidation of processes for all relevant products, including electricity and gas +++

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Editorial

Dear readers,

A recurring theme here at PSI is how to create competitive advantages for our customers through the use of our products. As a leader in innovation in our market segment, we have to keep one step ahead of the game so we are constantly on the lookout for potential areas of improvement and innovative technologies – whether generally in terms of an overall supply chain optimisation or more specifically as an improvement in the quality of production in individual process stages. Research projects are usually the first link in the chain when it comes to identifying new scope for optimisation and improvement in the process flow and assessing the potential benefits. Here at PSI we work closely with leading partners on research projects in various fields, so that when we find demonstrable potential for optimisation, we can build the results into our production management solutions.
In this edition for example, we describe how we have integrated the results of two research projects by VDEh-Betriebsforschungsinstitut into our PSImetals industry solution. In the cover story you will learn how a steelmaker has been able to optimise its use of energy and resources through improved accuracy in process control. The second article looks at the use of a root cause analysis technique based on data mining methods and designed for use in all process stages to support zero-defect strategies in quality management.

I hope you enjoy reading this edition.

Yours faithfully,

Jörg Hackmann

Director Product Management
PSI Metals GmbH

BOF converter process: Crude steel is produced by charging hot metal and steel scrap into the converter and adding slag formers. Oxygen is blown into the molten metal through a top lance, while inert gas is injected via nozzles in the bottom of the converter to stir the heat. Thereby carbon and unwanted impurities like silicon and phosphorus are combusted and removed via waste gas or slag. This oxidation process, which reduces the carbon content of the hot metal to the required value for steel, delivers the necessary energy for the converter process to melt the scrap and other additions and to bring the heat to the desired tapping temperature. Thus there is no need for an external heat supply.

► *Continued from page 1*

The converter process is normally controlled via static process models and fixed operating patterns for process gas inputs and material additions. With this control concept, an optimal operation of the process, taking into account dynamic changes during treatment of an individual heat, is not possible.

Dynamic process models have the edge

The dynamic on-line process model developed by BFI for the BOF converter calculates the steel temperature and the steel and slag analysis cyclically during the heat treatment.

The temperature of the heat is balanced by taking account of the energy introduced during the chemical reactions, the energy losses due to thermal radiation, heat conduction and off-gases, and the energy needed to melt scrap, lime and other material additions. The model calculates the steel and slag analysis on the basis of thermodynamic equilibrium states, taking account the enthalpies of the different oxidation reactions rates for decarburisation, dephosphorisation and combustion of metallic elements. Off-gas measurements can optionally also be used to reconcile the thermodynamic calculation of the molten heat state, e.g. with regard to the start of the final phase of decarburisation, when the CO content in the off-gas decreases sharply. The dynamic process model thus provides information on the current heat state, the prediction of the further heat state evolution and on the estimated end-point of the converter process.

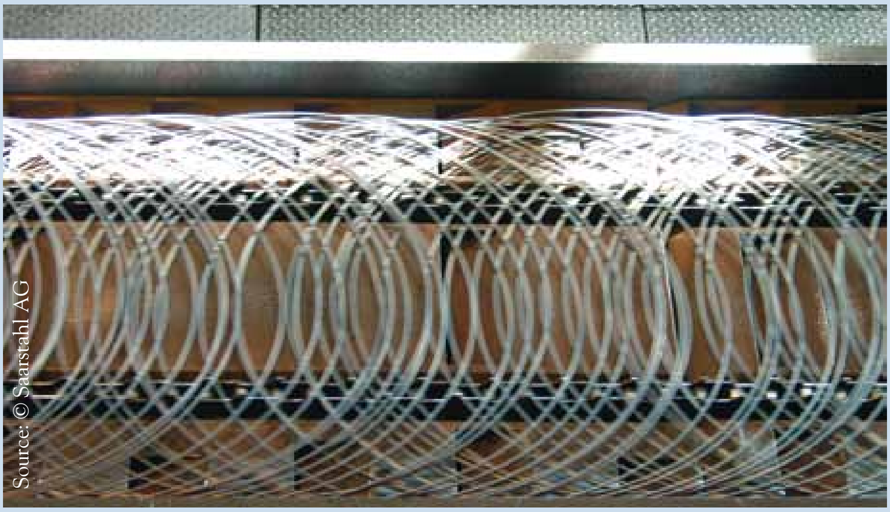
Process models and production management combined

During the converter process, production management systems like PSI*metals* monitor and control all process phases by managing expert knowledge on the necessary treatment practices and their target values, and also monitor and automatically control the process as a whole.

The integration of the dynamic BOF process model into PSI*metals* makes it possible to take both cyclically measured process data (e.g. gas flow rates) and acyclic events (e.g. material additions, temperature measurements) into account online in energy and mass balance calculations. PSI*metals* can use this information to calculate target values for optimised control. This enables the provision of a number

saarstahl

Saarstahl AG specialises in the production of wire rod, steel bar and semi-finished products in various grades. The basic oxygen steel making plant in Völklingen (Germany) has three BOF converters, each with a tap weight of 165 t, with an annual crude steel production volume of 2.53 million tonnes (2008).



Source: © Saarstahl AG

of different online functions, including process monitoring, dynamic endpoint control and comprehensive dynamic optimisation of process control:

- *Process observation:* The current heat state in terms of temperature, weight and analysis of steel and slag is continuously observed online throughout the entire BOF treatment, i.e. from charging of the hot metal up to the start of tapping.
- *Dynamic endpoint control:* The further heat state evolution can be predicted, assuming that process conditions (gas flow rates) remain constant. This allows calculation of the possible endpoint of the oxygen blowing, at which the predicted carbon and phosphorus content falls below a certain threshold and the target temperature is expected to be reached.
- *Optimised process control:* Changes of the heat state under varying operating conditions can likewise be predicted. These predictions can be used to calculate dynamic target value corrections (for oxygen blowing, heating and cooling additions, slag former additions) for optimised process control, taking into account the tolerances stored in PSI*metals*.

Source: © Saarstahl AG

Online process monitoring uses all available process data to continuously recalculate the steel temperature and the steel and slag analysis. This allows significantly improved prediction accuracy in comparison to static calculations. The dynamic model calculations integrated into PSI*metals* thus support optimal process operations over the entire treatment period to achieve the target values for the

Preparation	**Hot Metal Desulphurisation** - Mg/CaC_2/Soda - CaO	
Main Blowing	**Charge Material Calculation** - Hot Metal, Scrap, Lime... - Oxygen	**Dynamic Process Observation** - T, C, P, Mn,... - Current State - Predicted State at End of Blow
	Off-Gas Analysis - Oxygen up to End of Blow	
Finishing	**Correction Calculation** (w.r.t. T, C, P, S, Cr) - Oxygen - Lime, LD-Slag	**Desoxidation** - Anthracite, Al
Tapping	**Tapping Alloy Calculation** - Alloying Materials	

BOF process models with main functions integrated into PSImetals at Saarstahl

Source: PSI Metals

temperature and chemical composition of the molten steel.

Online process control with dynamic BOF model at Saarstahl

During 2009/2010 PSI*metals* was implemented as the production management system at the Saarstahl AG steelworks. As part of this implementation process the dynamic BOF model developed by BFI was also integrated into the process control functions of PSI*metals* in close collaboration with Saarstahl, in addition to a conventional static converter model. The diagram shows the BOF process models implemented within PSI*metals*.

At Saarstahl the main blowing phase of the BOF process is controlled online by means of a static charge material model, an off-gas analysis model for endpoint determination and the dynamic process monitoring and prediction model described here. The implemented online process monitoring and control functions based on dynamic models make it possible to control the endpoint of oxygen blowing more precisely, especially with regard to the target phosphorus content, but also with regard to the target temperature and target carbon content.

Outlook: model standardisation and extension of functions

In the online system, i.e. in the integrated application of the dynamic BOF process model within PSI*metals*, the mass and energy balance calculations are monitored and adjusted after each BOF treatment. Differences between the calculated and measured amounts of oxidised elements and between the calculated and measured temperatures are used to determine correction factors for oxygen efficiency and the heat loss rate of the relevant converter. This allows to track and treat systematic changes in process conditions over a series of heat production cycles, which are not mapped by metallurgical models, by means of statistical methods.

This type of dynamic process model, with its historical adjustment of basic mass and energy balances, also offers the prospect of future use as a basis for all the functions involved in controlling the converter process, i.e. for charge material calculation, continuous process monitoring and dynamic process control. This would make the introduction, development and maintenance of BOF models within process control systems like PSI*metals* much easier and lead to a standardised approach to optimising the use of energy and resources in converter steelmaking.

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Solution: Defect analysis with a combination of data mining and material genealogy

Where do defects come from? Solution for zero-defect strategies

Compliance with certain quality specifications in metal production is monitored throughout the process chain. But in spite of real-time monitoring, the required standards are not always met. Data mining techniques are already helping many metal producers to assess causes and effects in process and quality data. The results obtained are then translated into new quality specifications as part of a process of continuous improvement. However, operational quality control and the subsequent error analysis are often performed using separate systems and by separate parts of the organisation. Here BFI and PSI Metals are setting out new possibilities for an integrated quality management system covering all process stages. The findings obtained are fed directly into operational quality control, allowing appropriate countermeasures to be introduced while the process is underway.

Typically in the metals process chain, deviation in the product quality is not always caused by the process step where it is identified. For instance, very often defects on the surface of a cold coil are originally caused by specific conditions and process parameters during casting or hot rolling. The integration of data mining techniques into PSI*metals* means that correlations can now be identified in quality and process data recorded separately during the individual process steps. One of the cornerstones of this development is the complete modelling of the material genealogy in PSI*metals*, in which each segment of a product is mapped onto the historical segments of the input materials including all related quality and process data.

Genealogy: material relationships at a glance

The genealogy of a material stores the material's parent-child relationships and detailed process information about its creation. The material genealogy is modelled as a graph composed of nodes and directed edges.

A node shows the dimensions of a material at adefined point of time within the production process, including its associated physical coordinates, so a material always has several nodes over the course of the production process. After each process step the material is described using the local geometric units of measure.

Edges indicate how the dimensions of the material have changed during processing. A distinction is made here between types of changes to physical coordinates:

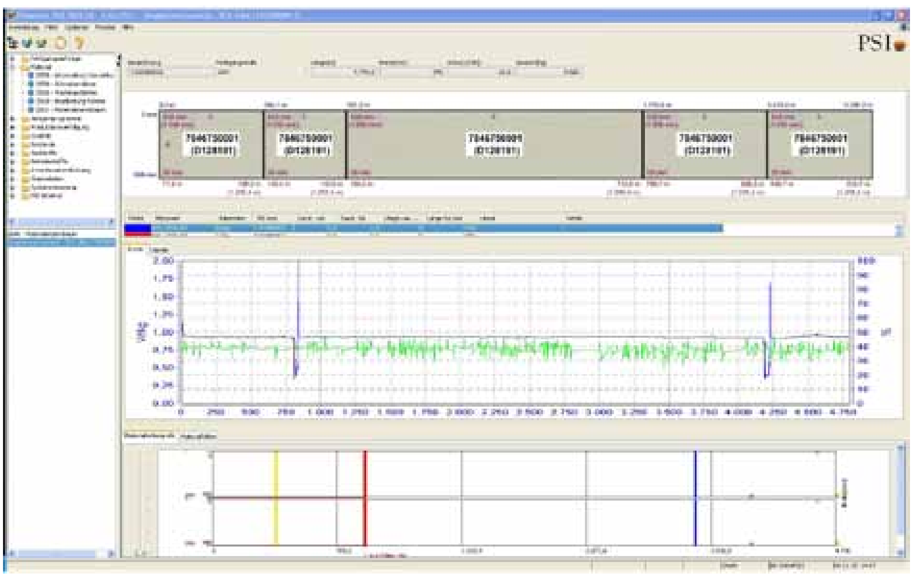
- Without physically transforming, e.g. caused by cutting off material parts (scrap),
- With a directional reference, e.g. caused by rewinding the material,
- With physical transforming, e.g. caused by rolling the piece with a resulting change in all dimensions.

At the transition points during the process (for example, from slabs to coils during hot rolling), rules define how the coordinates are to be transformed.

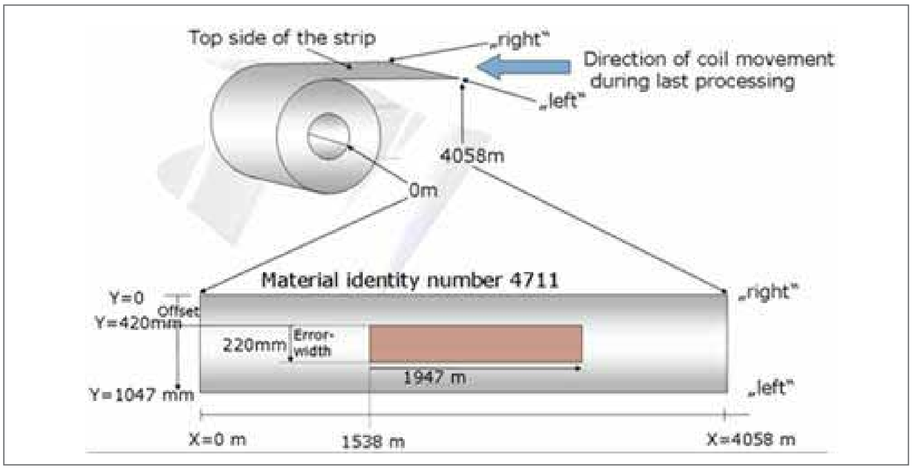
The challenge: recognising correlations across processes

During steel production, quality data is frequently collected in different systems and then analysed locally. This means that operational quality control and defect analysis are usually carried out separately for the individual production stages.

Yet many typical, recurring defects arise from the cooperation of process conditions and results along the process chain. For instance, shell defects often occur in the flat steel section after hot



Mapping of the errors and measurement values determined in the finished coil from the cold rolling and annealing processes onto the local coordinates of the hot strip coil as the "generic parent" of the finished coil



Tracking coordinates for coils

rolling, but in most cases they are caused by interactions between the processes in the steel mill. It is important to be able to identify the concurrence of cross-process influencing variables in good time in order to be able to introduce appropriate countermeasures. This requires the uniform mapping and projection of linear and time-related quality data across the entire process.

Dynamic projection of quality data along the material genealogy

The genealogy model assigns quality data and its local coordinates (e.g. data from surface inspection systems) to the material as it passes through the process. Provided that a genetic relationship exists, each segment of a piece of material can be projected onto any segment from previous process stages. In this way all the quality data recorded during the production process is incorporated into a normalized coordinate system for quality control.
Unlike existing quality data inheritance models with static predefined segments (e.g. 10-metre coil sections), the projection in PSI*metals* uses dynamic coordinates. Defective segments are pinpointed in this way and typical problems affecting static segments, such as loss of information due to insufficiently precise data aggregation, are avoided. This dynamic projection can be carried out both forwards (along the production flow) and backwards for retrospective quality analysis. Its generic design means that the model can cover all process stages, from casting through to the finished product. For product types such as slabs, coils, plates, pipes and long products, continuous quality assurance is guaranteed for every piece of material.

Cause analysis by data mining

Data mining functions analyse the correlations between the process data from individual process stages and the projected quality data, based on the complete genealogy of a piece of material. The application scenarios that are provided for this process represent a real innovation. Process and quality engineers can analyse the cause and effect principles of quality defects in steel production with no specific knowledge of data mining techniques.
Application scenarios can be created for different types of defect. A scenario includes not only the parameters and calculation methods necessary for data mining, but also the relevant process stages and variables for the problem being analysed. The user chooses the period for consideration for a particular defect class and receives an analysis of the cause and effect relationships as the result. The results are displayed to the user graphically and in text form.
The intuitive, dialogue-based user interface also provides help with creating custom application scenarios or modifying existing scenarios.

Quality improvement across every stage of the process

The solution developed jointly by BFI and PSI Metals provides a root cause analysis technique based on a combination of data mining and integrated material genealogy. Within the material genealogy of a product, PSI*metals* maps the causally related material parts/segments, including the associated quality and process data, for all process stages, down to the last detail. Correlations between quality and product data recorded at different production stages are retained. This innovative approach results in fast and accurate quality analyses. Findings can be fed directly into operational process control, providing optimum support for the implementation of zero-error strategies.

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User report: Läpple-Blechteileverarbeitung controls production automatically with PSI*penta adaptive*

"A first in the world of APS systems"

The manufacturing industry uses APS systems for the simultaneous planning of resources – material, machinery, personnel, tools – and for calculating production start dates. The systems use historical data and statistical models to control production processes automatically and guard against recognised disturbance variables. In an ambitious project, Läpple-Blechteileverarbeitung and PSIPENTA have demonstrated how adaptive control can be used to extend and improve on the performance of conventional APS systems.

In early 2010 the automotive supplier, for which resources and schedules play a critical part in the value-added process, took the decision to get in shape for forthcoming orders by implementing future-proof IT solutions. Klaus Mazurek, head of Corporate IT and CIO, was determined: "We have to prepare ourselves now so that after the crisis we are well-placed to make optimum use of available resources and respond flexibly to all market demands." After numerous analyses and model designs they launched the HatTrick project in conjunction with Berlin-based PSIPENTA Software Systems GmbH.

A hat trick should do it – goal 1

"The name was chosen to reflect the fact that we wanted to achieve three successes in three departments in three stages. Our schedule was very challenging too", explains Mazurek. The plan was to use information technology tools to optimise liquidity, delivery reliability and inventory levels in planning, purchasing and production in three phases, each lasting three months. The first phase began with an analysis of potential based on figures from 2009. PSIPENTA had to approach the problem from an engineering perspective by developing customised cybernetic models.

A simulation tool from PSI*penta adaptive* then used the data to show how the system would behave in different workflows. A pilot project was set up for selected item numbers to demonstrate the possible results. Working through the models with different settings showed which levers and parameters had to be adjusted in order to arrive at the defined goals. The first phase thus resulted in a series of mathematical models for modifying workflows and adapting them in response to internal or external disruptions.

Looking for example at production liquidity from purchasing through to shipping, the ideal scenario involves exactly the same amount of material coming in as going out at the end of production. Large stocks of material in the warehouses tie up capital and cost money, so the problem is how to synchronise incoming and outgoing material flows. All sorts of parameters suddenly come into play here, however, like purchasing lead times, order batch sizes, optimum production batch sizes, setup times etc. Synchronisation is both the challenge and the solution.

The various parameters involved have to be adjusted all the time as they are constantly changing, sometimes at very short notice. Purchasing lead times, for example, are not fixed permanently; they are dependent on supplier capacity, order cycles and economic conditions. Virtually nobody manages this data realistically. After two years at most, the parameters – and not just purchasing lead times – are of very limited value and are no longer suitable as a basis for planning. Controlling these processes reliably requires mathematical models. In addition, mathematical regulation platforms have to check whether everything is coming in as calculated. In the event of disruptions, the controller has to adapt automatically to realign incoming and outgoing flows. "It's a classic SCM problem", argues Mazurek.

The automatic planner – goal 2

The second stage was to develop the organisational building blocks for the third phase. Specialists broke down the identified parameters into subprojects and defined the measures that would need to be taken in order to achieve the targets. These included classifying items, developing production plans, defining batch sizes and producing capacity specifications. They also had to define and model actual and target processes and establish responsibilities, for setup time optimisation for example. In PSI*penta* it was simply a case of dividing the items into classes and assigning a production logic to each class.

But there was another factor involved in the second phase too, as HatTrick project manager Joachim Scherff explains: "Now everything revolved around the new finite capacity order scheduling, which had resulted in a lot of changes." In addition to PSI*penta*, the finite capacity

Läpple Group

The Heilbronn-based Läpple Group specialises in car bodywork production and metal working. At its sites in Heilbronn and in Teublitz (Bavaria) Läpple forms sheet metal into parts and makes components for complete body systems for cars and utility vehicles.
The group also owns companies from the Fibro Group, which are involved with the design and manufacture of rotary tables and standardised parts. Its third arm, FIBRO LÄPPLE TECHNOLOGY (FLT), is responsible for the group's plant construction activities.

In an ambitious project, Läpple-Blechteileverarbeitung converted its production network to an adaptive control system. Source: Läpple

scheduling system also works with the new SRM (self-regulating mechanism) and DPA (dynamic production adjustment) modules from PSI*penta adaptive*. The DPA module is mainly concerned with backlog processing. It automatically plans into the future and looks for free time and capacity. It can move existing orders to enable a backlog to be scheduled and coordinated with the entire network.
Until now the entire responsibility for production lay with the planners. Now, however, using the logic systems from phase one and SRM, the finite capacity scheduling system is able to plan for a period of 600 days. "Now planning is fully automated", CIO Mazurek comments.

Maximum transparency – goal 3

In the third phase SRM and DPA brought about not only adaptive control of the entire production network but also complete transparency of on-plan production. Mazurek is delighted: "For the first time we now have a realistic image of our entire factory, visualised in SRM. And at the touch of a button I can get a picture of the complete planning horizon." So for instance a capacity problem that will arise in six months' time can be identified now and resolved. PSI*penta* does not simply manage the commercial data for an order. The ERP system can also be used for creating bills of material, routings and tools. So if a partial call-off comes in for car doors from a larger order volume, SRM plans it at the touch of a button and adjusts the production flow so that all the orders in the network can be completed. In this way PSI*penta adaptive* automatically controls processes based on the actual ERP system values. "A first in the world of APS systems", according to Mazurek. Outside of production planning the modules optimise processes in the usual way, but they feed their plans back to the ERP system. This means planning sovereignty remains in the ERP system and is not shown separately in only the APS system.

A secondary benefit has been the development of an entire arsenal of controlling tools. The management, controllers and finite capacity scheduling system have an overview of all responsibilities, all problems and their causes at all times. So with company-wide transparency, automatic planning and adaptive control by finite capacity scheduling, the objectives of the project have been achieved. What's more, the management now has the ability to adapt strategies to market conditions at any time based on the very latest data.

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(Figure 1): Controlled loading allows process control by employees and monitoring of provisioning processes and loading progress from PSIwms using

(Figure 2): Pipes for water treatment are one of the core products manufactured by Georg Fischer Piping Systems.

User report: PSI*wms* in use at Georg Fischer Piping Systems

A long-term collaboration with an expert partner

For over ten years Georg Fischer Piping Systems has used a warehouse management system from PSI Logistics in its central distribution warehouse in Schaffhausen to manage all changes to its business processes and site strategies.

Along with integration capability and increased flexibility and efficiency, investment security is one of the most important decision-making criteria when it comes to choosing a warehouse management system (WMS). This applies both to the future viability of the software system and to the market presence of its supplier. The benefits of this type of decision-making basis are demonstrated by the example of Georg Fischer Piping Systems.

In 2000 the Swiss industrial group Georg Fischer, one of the world's leading manufacturers of plastic pipe fittings, decided to introduce a warehouse management system from PSI Logistics at its central distribution centre at the group's head office in Schaffhausen. The centre includes a seven-aisle high-bay pallet storage facility and a ten-aisle small parts storage area. "We opted for a flexible standard system that would fit in precisely with our business processes and provide scope to add additional functions and capacity in the future", explains Richard Weinberner, head of the distribution centre. "By choosing PSI Logistics we were making a deliberate commitment to a long-term collaboration with an expert partner."

Integrated IT

In 2007 GF Piping Systems consolidated a number of satellite warehouses, bringing them together at the logistics centre in Herblinger Tal (LZH). One aspect of this move involved migrating the old warehouse IT system. "After our positive experience with the software from PSI Logistics, we decided to go with PSI*wms* at LZH", explains Weinberner. Less than four months after placing the order, PSI*wms* had taken over the centre's inventory management. The system was set up for the process control and management of the 12,000 pallet spaces and the open storage area at LZH. At the same time it was linked into the stock management software from PSI Logistics used at the central distribution centre. Among other things this allows dynamic data updating within ongoing processes, consistent inventory management and real-time order transfers and feedback. The result is a "hierarchically structured multi-site system", says Weinberner. "The uniform, integrated IT systems have significantly reduced stock differences. At the same time we have improved process stability and reliability."

dialogue-based systems.

Source: Georg Fischer

In 2009 the company decided to integrate the loading operations for both centres into the software solution too, in order to improve loading quality and prevent loading errors through consistent control and documentation of the loaded packages. The advantage of the uniform software infrastructure is that, because the IT systems at the central distribution centre and LZH are closely linked and have multi-site capability, the corresponding workflows for both warehouses can be mapped in the existing PSI*wms* system.

Controlled loading allows process control and support by employees via mobile data terminals and monitoring of provisioning processes and loading progress from PSI*wms* using dialogue-based systems. "This means that several employees can work independently of one another on preparing an order", explains Weinberner. In addition, PSI*wms* is responsible for monitoring and load planning at all loading sites throughout the warehouse hierarchy. What's more, all status information from PSI*wms* is available to the finite capacity scheduling system at the Schaffhausen distribution centre in real time. "So both processes and inventory levels are transparent", says the logistics manager.

At the beginning of 2011 Georg Fischer Piping Systems in Schaffhausen set up an additional semi-automated logistics centre. The new warehouse, known as MF5, has around 15,000 pallet spaces. Over 3500 products are stored there – many of them transferred from LZH, which in future will operate as a reserve warehouse only. The new warehouse could be used even during the conversion phase, thanks to PSI*wms*. The MF5 site has been integrated seamlessly into the multi-site warehouse management system from PSI Logistics – complete with controlled loading and finite capacity scheduling feedback in real time – as a standalone warehouse site with separate goods receipt, goods issue and order picking processes. The statistics functions in PSI*wms* can also be used to produce accurate freight space calculations – a useful planning tool for the service providers linked into the system.

A synonym for investment security

The example of Georg Fischer Piping Systems shows that users can rely on the sustainability of their IT investment if they choose future-proof systems and developers. "Our decision to choose software from PSI Logistics has served us well", Weinberner concludes. "If an IT system proves its performance and expansion capability over more than ten years – which is a very long time in the IT world – and throughout this period developers can continue to implement functions for one-off special processes too, then in my view that's a synonym for investment security."

+GF+

Georg Fischer (GF) AG

Georg Fischer has three core businesses: GF Piping Systems, GF Automotive and GF AgieCharmilles.

Established: 1802
Head office: Schaffhausen, Switzerland
Sites: 130 companies
in 30 countries
Employees: 13,000
Turnover: CHF 3.5 billion (2010)

GF Piping Systems

A secure supply of clean water is becoming one of the crucial challenges of this century. GF Piping Systems meets this worldwide demand by providing safe, corrosion-free plastic piping systems.

The company supplies over 40,000 products for diverse applications and specialist markets: jointing technology, fittings, valves, measuring devices and pipes are used for water conveyance and treatment as well as for the transport of liquids and gases for industrial purposes.

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An interview with: Wolfgang Albrecht, Managing Director of PSI Logistics, on the Axxom takeover

"Logistics is a matter of global importance"

At the German Logistics Congress in Berlin in October, PSI Logistics announced the takeover of parts of the business of Munich-based supply chain optimiser Axxom Software AG. Wolfgang Albrecht, Managing Director of the software provider for logistics networks, explains the background to the decision and its implications for the PSI Logistics product portfolio.

Mr. Albrecht, how did this asset deal come about?

Albrecht: PSI Logistics recognised the potential offered by combinatorial optimisation and advanced planning and scheduling (APS) for supply chain management some years ago. These areas were core competencies of Axxom too, which is why we had been working with Axxom for quite some time under the terms of a cooperation agreement. In parallel, the integration of Fuzzy Logik Systeme GmbH (FLS) into the PSI group significantly enhanced our expertise in these areas. We saw Axxom's insolvency as an opportunity to strengthen the development expertise of PSI Logistics.

So you took on employees and development areas from the insolvency assets?

Albrecht: Yes, but that's not all. Under the management of PSI Logistics, all existing customer installations of Axxom products will continue to be supported without limitation. PSI will assume all rights and obligations from existing maintenance agreements.

For all customers and locations?

Albrecht: All customers – worldwide! The takeover by a stable, competent company with an international presence has been well received by existing customers. Well over 90 per cent of them, including major players like Avery Dennison, Hermes, MAN and Panalpina, have chosen to continue their support package with PSI Logistics.

So will you carry on driving forward the internationalisation of PSI Logistics?

Albrecht: Logistics is a matter of global importance. One of the objectives of PSI is to continue to expand and strengthen this segment – which, incidentally, is seeing double-digit growth rates from organic development – within the group. Growing our overseas business will have an important part to play in this.

Will the takeover have implications for the PSI Logistics product portfolio?

Albrecht: The optimisation procedures will naturally reinforce the leading position of our products PSI*wms*, PSI*tms* and PSI*global*. In addition, they will open up completely new approaches for IT support for cross-company planning and negotiation procedures with significant savings potential.

What exactly does that mean?

Albrecht: In the area of intra-logistics, for example, we will continue to develop the sequencing options and forecasting tools provided by our products to enable us to offer users even greater process control and decision-making efficiency. In supply chain optimisation, Axxom's expertise provides an additional element in our bid to extend our solutions to include the intelligent planning and control of complex logistics networks.

That sounds very promising. Mr. Albrecht, many thanks for sharing this information with us.

► Information

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Event: PSI Logistics MD initiates new logistics platform

CeBIT 2012 to focus on logistics software

Next year's CeBIT trade fair will give logistics software its own platform. At the suggestion of Wolfgang Albrecht, Managing Director of PSI Logistics and member of the CeMAT steering committee, manufacturers of logistics software will be given a new showcasing opportunity at CeBIT 2012 in the form of a group pavilion and their own forum in Hall 5 of the exhibition site.

CeMAT team to organise logistics IT forum

"Given the short innovation cycles in our industry, we need a trade fair at which we can showcase our latest innovations every year, in addition to our three-yearly attendance at CeMAT", says Albrecht, explaining the thinking behind the initiative. "CeBIT is the ideal venue for this, as we will meet IT decision-makers from all the relevant user industries."

The "Logistics IT" group pavilion and the new logistics IT forum will be organised by the CeMAT team from Deutsche Messe AG. In future they will become a central showcasing platform for logistics software at CeBIT. "This new initiative underscores the importance attached to intelligent information technology in logistics", Albrecht concludes. "I am quite certain that this platform for innovative development approaches will find favour with many visitors to the fair."

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Event: 25th meeting for PSIPENTA users in Zurich

PSIPENTA goes global

Much more than a "class reunion": more than 250 customers took the opportunity to share experiences and ideas with other users and PSIPENTA employees. Source: Petra Tschofen

The independent association of PSI*penta* users (IPA) met for its 25th annual conference from 10 to 12 November 2011. With more than 250 external delegates, the conference and workshop rooms at the Mövenpick Hotel at Zurich airport were filled to capacity. Encouragingly for PSIPENTA, 44 per cent of the visitors were first-time attendees at the conference.

"If we carry on doing what we've always done, then we'll carry on getting what we've always got." These words by Theo Albrecht, quoted by Alfred M. Keseberg, Managing Director of PSIPENTA Software Systems GmbH, at the start of his address, provided a fitting lead-in to his review of a host of new features and innovations. He started by explaining the need for international growth. According to a survey by the German Engineering Foundation (VDMA), three quarters of machine builders in Germany, Austria and Switzerland expect a growing proportion of their sales to come from abroad, and over 60% are planning to expand production outside these countries. So this step is a development with and for customers, the Managing Director argued. Keseberg announced some new features over and above the general release cycles in product development too: in the long term modules will increasingly build on the JAVA-based PSI suite; the first of these modules, the just-in-sequence solution for the automotive industry, is already available.

His views echoed those of Dr. Harald Schrimpf, Chairman of PSI AG, who as usual delivered the annual conference's opening address. He underlined the growing importance within the PSI Group of the Production Management division. With turnover up by 15% in the first nine months and a clear rise in operating profit to EUR 3.6 million, the business has developed into one of the mainstays of the Group.

In the two workshop sessions that followed, participants could choose from a variety of topics including migrating to PSI*penta* Version 8 and adaptive production control. All twelve workshops were organised jointly by customers and PSIPENTA experts.

As one of two guest speakers, André Wall, President Europe of the Swiss aircraft maintenance and servicing group SR Technics (SRT), gave a general introduction to his company. On the Thursday afternoon 120 conference delegates had already had the opportunity to learn about the various divisions of the PSIPENTA-PEC customer's company during an impressive tour of SRT's main site at Zurich airport.

In the final presentation of the evening ("In the desert with PSI"), Fritz Bieri, interim manager for manufacturing and logistics processes at Volkswagen Motorsport and owner of GSSM Solutions GmbH, described the challenges facing VW Motorsport and explained how VW uses PSI software at the Dakar Rally, for example.

The final day of the conference was as usual given over to reports from the IPA working groups. The acting chairman was confirmed.

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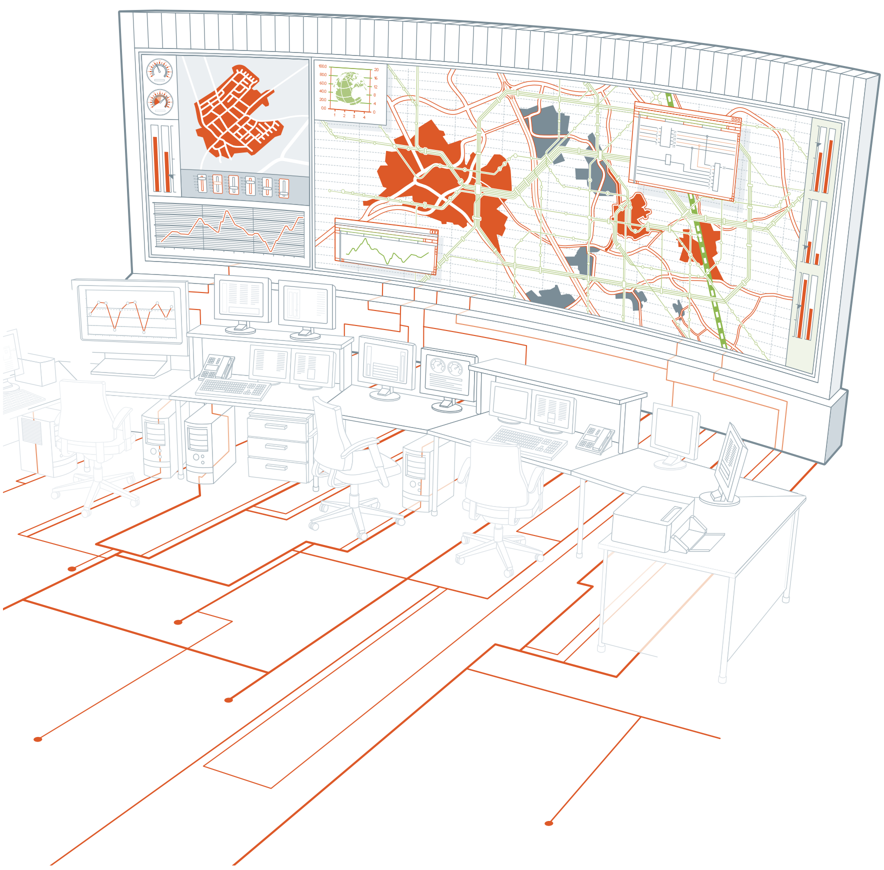
Rise in incoming orders and group turnover

PSI industrial sales remain high, even after nine months

The PSI Group has seen a rise in operating profit (EBIT) of 16% to EUR 6.3 million in the first nine months of 2011. Compared with the same period last year, earnings before taxes (EBT) rose by 22% to EUR 5.1 million, while group profit after interest and taxes was slightly down on last year, at EUR 3.4 million, due to the temporary effects of deferred taxes. Group turnover was up by 3% on last year, at EUR 117.3 million, while the value of incoming orders increased by 13% to EUR 138 million. Last year's figures for incoming orders and turnover each included EUR 4.5 million for the telecommunications business, which has since been sold.

Turnover in the Production Management segment (raw materials, industry, logistics) rose over the first nine months by 15% to EUR 56.1 million. Operating profit rose sharply to EUR 3.6 million. This improvement was due in large part to the sequencing optimisation and logistics businesses. The raw materials transport business has won its first order from the Asian market.

In the first nine months the Energy Management segment (electricity, gas, oil, heating) increased its turnover by 4% to EUR 47.0 million. Due to continuing high project costs in exports and investment in systems for electricity distribution grids, operating profit fell to EUR 3.1 million. Owing to regulatory changes in the electricity distribution sector many grid operators are currently in a planning phase, so new investment is unlikely before 2012.



Due to the sale of the Telecommunications division at the end of the year, turnover in the Infrastructure Management sector (transport and safety) fell by 28% to EUR 14.2 million. Operating profit in the segment fell by 23% to EUR 1.0 million. PSI is expecting a rise in turnover and profit in this segment in the fourth quarter because of a substantial order backlog in Southeast Asia.

The number of people employed by the group increased to 1466 as of 30 September 2011, while the value of order backlogs in the group was up on the previous year, at EUR 124 million. Cashflow from operating activities increased by 35% to EUR 6.6 million, resulting in a rise in liquid funds to EUR 29.6 million.

In the third quarter PSI pushed forward with divisionalisation and with the development of product liability in the Electrical Energy division. The new product version, which is scheduled for completion by the end of the year, will improve the associated upgrading and updating processes and increase the maintenance share. From 2012 onwards PSI will therefore be able to draw greater benefit from the growing investment demand for intelligent grid management solutions (smart grids) arising from the energy shift in Germany.

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