

### Optimizing utility with ProcessMonitoring

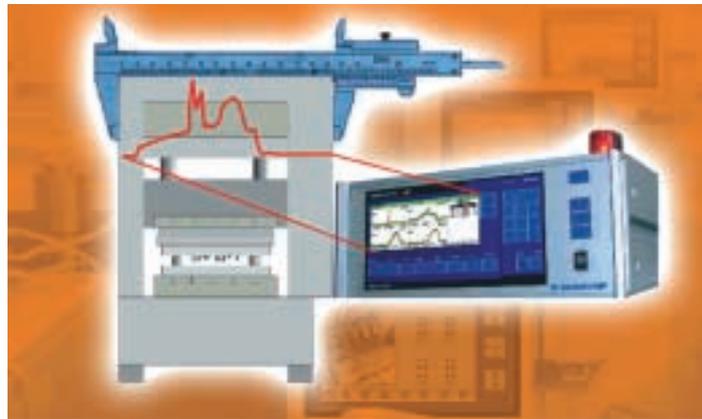
# New chances for the suppliers

By Prof. Dr.-Ing. Klaus Brankamp

The situation of the components supplying industry has been aggravated for many years by zero increases in earnings negotiations. On top of this, new demands made by the QA sector or by Just-in-Time deliveries have even increased the workload.

Some component suppliers would now gladly settle for no increases in earnings, instead of which they are even confronted with massive demands to make price reductions. Many firms have experienced clear drops in sales with the well-known effects this has on the performance situation.

If the saying „Nothing will ever be the same again“ is true here, then the volume will not return, and the price will dictate the competition even more. To wait it out would therefore be a bad strategy. What, then, can we do? In the short and mid-term horizons we must reduce the costs even more radically and drastically increase the yield obtained with the production factors used. From my knowledge of many



Indispensable tool: drum-measuring instrument for process technology

firms, I concede that will be difficult, but thank God we still have reserves.

If the real net output in firms is taken as a suitable yardstick for measuring utility, then we realize that the real net output in euros with respect to wages/salaries, production area, fixed assets and floating assets indicates that great reserves do exist. A considerable factor here lies in the intensive usage of machines and buildings.

Firms are well aware of the problems regarding the current difficulties, but less aware however of the problem that they must

now urgently start to adapt themselves radically to this situation and to introduce radical, structural measures right now. Some firms will realize that the measures previously carried out are in fact insufficient. A supplier known to me serves as a positive example.

The supplier in question has taken measures such as: switching over from single to double shift operation with less machines; saving on production area by concentrating the machine space and selling no longer needed land and buildings to generate considerable revenue.

Such exemplary usage of the possibilities presented should inspire us. A good instrument for improving the situation would be to conduct benchmarking comparisons in the respective region, so that best solutions become the yardstick! This harbours great potential.

### ww partnership

## TEXTRON trusts in BRANKAMP

BRANKAMP announces a worldwide cooperation with Textron in the field of process monitoring in metal forming.

The Textron Group is the biggest Forming group in the world having more than 1000 machines in use. Because of the strategic importance of process monitoring for the production of high quality parts the Textron management started a market research study to find the right unit for the Textron purpose.

It was decided, that for their most demanding production requirements there was no unit on the market that fulfilled their high expectations. So an order was placed to Textron Systems, a high tech electronic company inside the group, to develop a unit just according to the Textron specifications, ensuring accurate forming. Textron systems has designed ACCUFORM™2000, an example of “smart engineering”, where aerospace and defense technology forge a link to industrial application, including all experience of the Textron coldforming know how.

ACCUFORM™2000 is a state-of-the-art process monitor capable of monitoring multi-sensory signals with powerful analysis programs. It is PC-based with Windows NT, creating a link between shop floor and office communication. The network ready system configuration can interface with LANs, Ethernet, Intranet and Internet via cable or wireless link.

*continued on page 2*

### QUOTATION OF THE MONTH:

»Quality is the opposite of coincidence.«

*Klaus Zumwinkel Chairman of the Board of the Deutsche Post AG*

The special issue:

“Flaw detection combined with ProcessMonitoring“

page 3

Forward Thinking

## News

### RENAULT: Go ahead for BRANKAMP

In terms of its bid submitted to the French automobile manufacturer, Renault, BRANKAMP has prevailed against its competitors. The group has now given the go ahead to use the BRANKAMP ProcessMonitoring systems in its factories. This release is the basic requirement for a cooperation.



### MERCEDES HAS THE BEST IMAGE

Mercedes-Benz has taken the place of BMW as a make in regard to the best image. This is the result of the current Automarxx study presented by the ADAC (RAC) four time a year. The second and third places were given to BMW and Audi.



### BMW expects record result

This year, BMW expects profits in excess of 1.9 billion Euro. Based on this positive sales trend, the group reports that BMW Group will exceed previous year's record figures for sales and revenue in the 2002 financial year.

### FIGURE OF THE MONTH: POTENTIAL DEMAND ON THE AUTOMOBILE MARKET



### Study by PricewaterhouseCoopers (PwC)

# Trends in the automotive industry

**According to the results of a recent study by PricewaterhouseCoopers (PwC), suppliers must re-evaluate their strategies and business procedures.**

The figures speak for themselves: if the trend of take-overs and fusions continues, the number of Tier I suppliers will be reduced from 800 to 35 and Tier II suppliers from 10,000 to 800. The remaining firms will then no longer supply nine car manufacturers as previously, but six at the most. This is the result of a study by the business consultants PricewaterhouseCoopers (PwC).

“Cost reduction alone will no longer suffice in future. Whoever does not achieve any additional added value and does not make this added value transparent for the customers will fail,” states Dr. Gerald Heine, Head of the Automotive Division at PwC in Germany.



Experts do see a success factor in specialisation. To expand continuously a special area and to align all operations to this core ability should therefore have top priority. Aligning company processes to suit the Internet is also an important building block for success.

The study further concludes that there are three ways that lead to growth: to move up in the value-added chain, to enter into bulk

business or to occupy a niche. To achieve the first objective, integrated modules must be produced instead of individual components. This requires making strategic acquisitions and partnerships.

In the risk-laden area of mass production, efficiency is all that counts, since only those who increase turnover will also attain more profit. But the turnover also depends on the manufacturer's sales success. Niche-providers are less subject to such price wars. For them, it is important to be able to offer a high extra utility, for example by establishing their products with as many models as possible.

The study entitled “Supplier Survival – Survival in the Modern Automotive Supply Chain” can be downloaded free-of-charge from the Internet at: [www.pwcglobal.com](http://www.pwcglobal.com).

*continued from page 1*

Although putting in all Textron experience into the ACCUFORM™ 2000, Textron was looking for a partnership for manufacturing, sales, installation and service taking the high standard and worldwide locations of Textron into account. Textron selected BRANKAMP for this partnership, because the pioneer of ProcessMonitoring could ensure the high profiled personnel for production and service, fulfill the ISO 9000 standard, offers the total application engineering, development, installation and service support with its worldwide organization.

BRANKAMP makes it possible that this progressive technology is available for all interested cold forming companies worldwide.

The aerospace and defense technology background is the reason for the high precision of components and manufacturing procedures, reflecting in a high valuable product.

### Looking at France

## BRANKAMP at the MICRONORA

**Together with French marketing partners A.P.E., BRANKAMP made a successful presentation at the MICRONORA 2002 trade fair at the beginning of October.**

The MICRONORA is the forum for the companies in the Franche-Comté region—the French centre for press technology, micro-mechanics, automation and robotics. Furthermore, the city of Montbéliard is an important location for the machine and automotive industries.

In Besançon alone—the capital city of Franche Comté—10,000 experts work in the above-mentioned areas; in the entire region the figure is as much as 30,000. Close ties with France's only technical university for

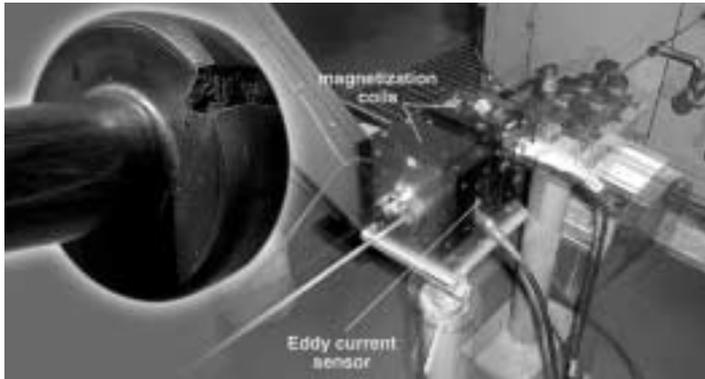
micro-technology and with institutes such as the Centre for Production Technology mean that this strip of land in the East of France sets the pace for the industry. Not least for this reason therefore is the MICRONORA 2002 seen as the leading trade fair. Juan de Cruz, responsible for BRANKAMP's French customers in the area of presses, states, “We were able to deepen many contacts and even sign some deals directly at the stand,” in summing up the successful trade fair appearance.



Yann Ricard, representative for Greater Paris, Christian Arbel, responsible for customers in Besançon and its environs, and BRANKAMP employee Juan de Cruz at the trade-fair stand.

## Quality Management:

# Flaw detection combined with ProcessMonitoring



Flaws in wire material may cause cracking during forming.  
Eddy current sensor and magnetization coils in the wire feeder section.

The combination of ProcessMonitoring and flaw detection by the Eddy current technique constitutes an efficient and economical method for detecting material flaws in safety relevant component parts without any reduction of production speed. The extent of flaw detection downstream the production line which is more time-consuming, more labour-intensive and more expensive, may thus be reduced considerably.

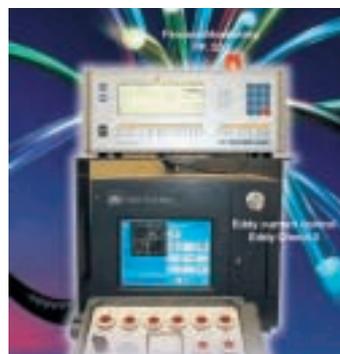
More stringent quality requirements in the field of cold forming have resulted in specifications which in many cases call for safety component parts completely free from cracks or flaws. Since minor material deficiencies such as longitudinal, transverse or surface cracks only have little influence on the forming operation and the associated pressing forces, an additional flaw detection is becoming necessary for such components.

## Flaw detection upstream the press is of advantage

Flaw detection may be effected by different methods either on the input material i.e. the wire before pressing or the formed part after production. Eddy current testing of the wire material prior to shearing and forming of the incoming material directly on the machine constitutes an

economical and automated process. The advantage offered thereby is testing of the full length of component parts whereas in case of single part inspection in formed condition it is only partial areas that may be tested for freedom of flaws or cracks because of the partly complex geometry of parts.

The wire is uncoiled from the reel passing through the straightener and then through the magnetization unit and the circular coils for flaw detection. The material is examined by non-contact eddy current testing permitting a variety of material defects to be detected (cracks, pores, fins, seams, etc.). When a defect is found on the wire mate-



BRANKAMP PK 550 ProcessMonitoring system with wire flaw detector

rial, the flaw detection system will generate a fault output signal for evaluation by the BRANKAMP PK 550 ProcessMonitoring system.

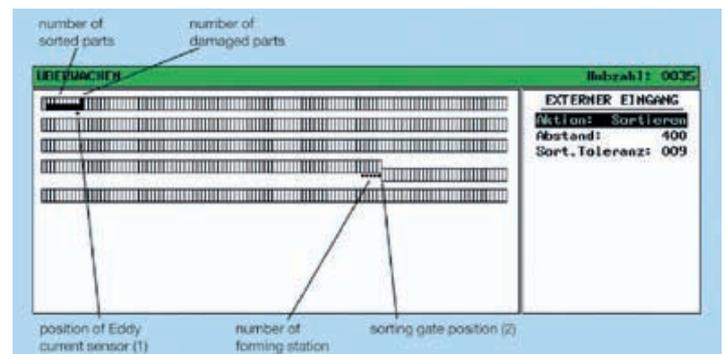
## Adjustable sorting tolerance

The operator merely needs to enter the spacing of eddy current sensor technology from the machine, i.e. from the shearing stage and the specified cutting length. Both values define how many strokes a defective wire section will require until shearing and subsequent forming in the machine. In addition, a sorting tolerance may be adjusted controlling the time of opening of the sorting gate. In the present case, the sorting gate will open four sections before the defective one and will not reclose but after four strokes after the nonconforming part. Inaccuracies in wire feeding and ejection of the parts up to the sorting gate will be compensated thereby. Higher sorting tolerances will ensure that all nonconforming parts will reliably be sorted out also in case of large spacings between Eddy current sensors and sorting gate.

a nonconforming part may be detected either by flaw detection or by the ProcessMonitoring associated with the various forming stages.

## Clear display of results

In addition, it will be possible for the operator to check the results of flaw detection and hence of sorting on the display of the Brankamp PK 550 system. A so-called sorting queue will indicate the cracked wire areas so that the defective parts may be removed systematically at the sorting gate and the monitoring results may be checked directly on the component parts. Flaws or cracks in the wire will become more readily visible on the formed part and will permit clearer interpretation of the faults incurred as compared with wire sections, for instance, sorted out already before forming. Furthermore, the load distribution inside the press will not be influenced by rejected



Sorting queue with flaw detector (1) and sorting gate (2)

The number of forming stages as well as the spacing of sorting switch from the last pressing stage are contained in the basic data record for ProcessMonitoring. The PK unit will monitor all machine stages and detect typical process malfunctions during forming. The Quattromatic envelope-curve method permits head cracks to be detected additionally which during heading are caused by the cracking of wire sections not damaged before. The inner envelope curve ensures that minor changes of forces will be detected and used for actuation of the sorting gate following the forming operation. Simultaneous sorting is useful here, since

sections resulting in a more consistent product quality.

As shown by the combination of ProcessMonitoring units and wire material flaw detection in several plants, the quality of the wire material used is clearly fluctuating. In the applications involved, defects in the range of 2 % to 13 % of the wire material have been detected by Eddy current testing and could be sorted out via the sorting gate.

Specialprint of UMFORMTECHNIK. The authors: Dr.-Ing. Thomas Terzyk and Dipl.-Ing. Ferdinand Opper Prokos GmbH of BRANKAMP Group.

Easy Reporting eR5

# Simple. Expressive. Cost-effective.

BRANKAMP eR5 is an online ProductionMonitoring System with easy-to-install hard and software. The system makes manufacturing transparent. With the help of BRANKAMP eR5, the most important production data is accessible 24 hours a day, 365 days a year.

BRANKAMP eR5 achieves this transparency in an incredibly simple fashion: all that is needed is a signal impulse from the machine. This impulse is acquired directly from the machine and recorded and saved in the INC Box. Each INC-Box can handle data from up to eight machines and store it in the eR5 database via the in-house network. What does the eR5 provide? BRANKAMP eR5 is easy-to-operate: data and graphic evaluations can be called up using any web browser via the Intranet or even via the Internet. BRANKAMP eR5 automatically supplies the production's most important basic data. The collected production data is visualised online in clear reports and expressive graphics.

### Workshop overview

In the workshop overview, the machines are arranged in their actual spatial position in the workshop. The current machine status can be seen from the colour coding:

- green machine running
- red machine stationary
- blue machine production not planned (e.g. repairs)



### Stop-and-Go Diagram

The Stop-and-Go Diagram records the running behaviour of each particular machine in chronological order. The different operating statuses of the machine are indicated by the colour:

- green machine running
- red machine stationary

The daily, weekly and monthly report enables a comparative, machine-related evaluation of the produced quantities per day, week and month.

### Production log

The production log shows the acquired production data in chronological order. Job-related information can be supplemented quite simply.

This enables results such as job registration and de-registration, set-up times and also the produced quantity and waste quan-

tity of the production job to be called up at any time.

### The INC Box

The INC Box records and saves the impulses from up to eight connected machines. Using the TCP/IP protocol, the INC Box periodically transfers the data to the in-house network (e.g. every 5 minutes) and saves the data in the eR5 database.

Should the network go down, the collected data remains temporarily saved in the INC Box. The INC Box is available in two versions: either for up to eight machines or for two. It can also be connected without problem via radio (wireless LAN).

### System architecture

By tailoring our database solution to suit the optimal throughput, we have created an online real-time system, which provides the greatest flexibility due to the operating system variants and network variants used.

### User friendliness

# B 100 – an all-round talent with mobile phone operation



As a pioneer in ProcessMonitoring, BRANKAMP has, for the past 25 years, known how to give the market important momentum with innovative developments.

At the core of each and every innovation has been user friendliness. The best example: the BRANKAMP B 100. Despite its extensive functions, this all-rounder among monitoring systems manages with a simple, intuitively operable control.

The operating concept was modelled on a mobile telephone. In the same way as the worker can send SMS and call up stored telephone numbers on his mobile phone, he can also navigate through the various menus of the B 100.

The advantage: Staff are trained quicker and are able to handle the ProcessMonitoring system confidently.

Dr.-Ing. K. Brankamp System Prozessautomation GmbH, Max-Planck-Str. 9, D-40699 Erkrath

#### BRANKAMP GERMANY

Phone +49/ 211/ 25 07 60  
 Fax +49/ 211/ 20 84 02  
 eMail bpd@brankamp.com

#### BRANKAMP ITALIANA S.R.L.

Phone +39/ 039/ 68 99 730  
 Fax +39/ 039/ 60 91 895  
 eMail bpi@brankamp.com

#### BRANKAMP USA

Phone +1/ 617/ 492 16 92  
 Fax +1/ 617/ 497 56 75  
 eMail bpa@brankamp.com