



## The future of ProcessMonitoring

Quality up, costs down - this is the central task for any modern production. In finding the right solution, ProcessMonitoring is becoming more and more important. 25 years ago, this technology was introduced by BRANKAMP. Today, more than 40.000 BRANKAMP systems alone are in operation throughout the world.

The most important future trend for ProcessMonitoring is now becoming apparent: „The range of applications is extending and growing“, predicts Professor Klaus Brankamp. „This is due to the fact that the companies themselves are making use of the technology in a more and more intelligent way, namely as a measuring

instrument for every production stage.“ Today, operators may be supported in an optimal way by ProcessMonitoring systems whether during setup, during operation or upon stopping of the machine in any phase. With the data supplied the operator is capable of effecting a faster and more precise machine setting. The

quality of parts produced is optimized, service life is extended and protection of both machine and tooling will be ensured.

But it should also be clear: The importance of man-machine interaction and teamwork is becoming greater and greater despite all technology. „Our ProcessMonitoring systems may be compared with the revolution counter in a car“, says Professor Brankamp. „One driver will just pay attention not to get into the red range and overspeed the engine. Others use the revolution counter to shift gears in time and save gasoline thereby. It is for this reason that actually there is no car with a fuel consumption of 3 liters, but only drivers capable of achieving such a consumption figure.“

In future, it will also matter to improve the operator-machine interaction still further. Herein, BRANKAMP as the pioneer of ProcessMonitoring today is offering its 25 years of experience. Since this experience constitutes the optimum basis for the future, the milestones of the development to date will be once more summarized in a special of the BRANKAMP Journal.

*The special issue:*

### Fitting, running, stopping

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#### INDUSTRIAL PRODUCTION:

##### More hoping than worrying

For 2002, experts expected a change in industrial production at the following percentage rates in the countries below.

	January	May
CH	1,6	2,3
NL	1,5	1,4
USA	-0,8	0,3
D	-0,3	-0,3
UK	-1,1	-2,1

Source: IWK Köln

## News

### DÜRR AG IMPROVES EARNINGS

In the first six months of this year, the technological group of Dürr AG has managed to improve its order bookings. Due to large-scale orders received from North America, Europe and China the order log value increased by 16 % to 1.17 billion Euro.

### FORD-WERK BUILDING THE MAZDA 2

The new Mazda 2 mini to be put on the market in spring, will be built in Valencia, Spain. The successor to the Demio will come off the production line in the plant there of the Ford parent company.

### LOW-PRICED CAR FOR CHINA?

The Volkswagen Group is planning to put a car on the Chinese market for a price of less than 100.000 Yuan (12.000 Euro). According to press reports, the group will once more invest 2.5 billion Euro in the growing Chinese market during the next three to five years.

### QUOTATION OF THE MONTH:

»Small things make up perfection, but perfection is not a trifle.«

Sir Henry Royce

Co-founder of Rolls Royce

## News

### LACK OF MANAGERS IN THE AUTOMOTIVE INDUSTRY?

A study undertaken by Transearch Personnel Consultants shows that many companies in the German automotive industry will have problems in filling their management positions by 2010. Only very few companies are said to make provisions to compensate for the effects of demographic changes. According to the consultants, the industry can no longer afford early retirement, in future.

### TRAINEE RECORD

A ceiling mark in new training contracts has been reported by the Arbeitgeberverband Gesamtmetall (Employers' Association for the German Metalworking Industries). The number of new apprentices or trainees increased by 7.2 % to a total of 71.900.

### VW AUTOMOTIVE UNIVERSITY

In future, Volkswagen intends to train its employees at an automotive university in Wolfsburg. The new project is scheduled to be started in autumn and will require funds of 40 million Euro during the next years.

### FIGURE OF THE MONTH: Less and Less suppliers to the automotive industry

NUMBER OF SUPPLIERS TO THE AUTOMOTIVE INDUSTRY THROUGHOUT THE WORLD, IN THOUSANDS



Whilst 30.000 suppliers to the automotive industry throughout the world were still active in 1988, only 3.500 are expected to be still doing business in 8 years from now, according to a study elaborated by Mercer Business Consultants.

*An example from real life*

## Machine data acquisition as state-of-the art technology



Machine data acquisition of the next generation: Several machines are connected to the BRANKAMP MT 500 via the IMC box. In this way, the employees of H. Prinz GmbH, Fabrik für Verbindungselemente, Plettenberg, are given the opportunity of logging the data of all machines via one single system. At the same time, the BRANKAMP MT 500 will transmit the data to the Intranet. For more than 10 years, the company of H. Prinz GmbH has been manufacturing wire cold forming parts of highest quality inter alia also for the automotive industry. The company as such was already established 127 years ago.

*Maquitech 2002*

## BRANKAMP in demand in Barcelona

The BRANKAMP appearance on the „Maquitech 2002“ has been a full success. Together with Comtesa, the Spanish marketing partner, the Pro-



*Juan Figueras, general manager of Comtesa, representative of Brankamp Spain*

cessMonitoring specialists from Erkrath were represented in Barcelona from 10th to 14th September. The „Maquitech“ is considered the leading exhibition for the metalworking industries in Spain, one of the fast growing economic sectors. More than 1.300 companies participated in the exhibition on 370 stands. „The exhibition was well attended despite the Spanish national holiday in between“, says Juan De Cruz, looking after the more than 60 Spanish BRANKAMP customers in the fields of stampings and cold formed solid parts. „It has been possible for us to establish many new contacts, and quite a number of orders could be secured directly at the stand. The interest of many visitors focussed

## BRANKAMP backed by SKF Nederland

People looking pleased in the production shop of SKF Nederland. The production at the Veenendaal headquarters has been equipped with PK



on the Acoustic Emission Technology of BRANKAMP. Herein, the Process Monitoring systems by means of acoustic sensors protect both the machine and the tooling from expensive damages.

4000 processMonitoring systems by BRANKAMP. SKF Nederland is the Dutch subsidiary of the SKF group of companies acting as worldwide suppliers to the automotive industries in 130 countries. The SKF group of companies with its 40.000 people employed is considered the technological market leader in its trade throughout the world.



*Protective hood on the machine.  
ProcessMonitoring helps*

# Fitting, running, stopping

*by Prof. Dr. Klaus Brankamp*

Production processes can now be made visible by using modern sensors in tools and machinery. Recording the measuring results of the forming forces or acoustic signals by means of suitable sensors is a particularly important technology in the reshaping process for the production of complicated formed parts, screws, or nuts.

The aim is to be able to monitor production processes on a continuous basis and to recognize machine risks or deviations in the production quality.

Today, many machines are enclosed by protective hoods preventing the worker to have any direct contact with the actual production process. This limiting factor is bridged by suitable process-Monitoring devices. These devices, which today are



*A good look into the machine*

based on the latest PC technologies, provide the worker with diverse information. Despite complex technology, they are easy to operate, having been tried and tested in factories.

The machine operator obtains informative parameters on the process quality by means of which he can

assess the process quality, any changes to it, and the current state. From the parameters shown in graphical and numerical form, the worker receives information on the optimal fitting of the machine with new parts, on changes in the process (trends), and in case of a machine stoppage, on the causes.

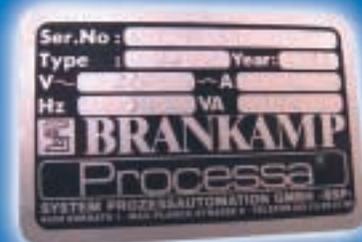
By means of adjustable limits for those parameters that are relevant to the production, the operator is able to intervene in case of intolerable departures from the process parameters caused by faults in the process or on the produced part, and to readjust or immediately stop the machine.

Various counting functions, for example, show the progress of the make-to-order production, the remaining quantity still to be produced, and the remaining operating time for an order. Thus, the difficult task of an up-to-date counting function of the quantities produced is carried out automatically. Other counters log the tool life quantities or monitor maintenance intervals.

Efficient production requires the greatest use of machinery. Suitable automatically produced operating time diagrams show the productivity trend of a machine and enable an automatic evaluation of stoppage causes with the aim of optimising the production process.

Modern measuring devices for processMonitoring provide a perfect process navigation as support in the fitting phase on new workpieces, in the constant observation of the stability and any changes in the process, and, in case of the stoppage analysis, details on the reasons for the stoppage. Thus the worker is able to recognize without delay any material deviations, parasitic tool inductions, changes in the material, or general disruption in the process. Thus, in addition to protecting the machine and the tool, it is possible to improve the quality of the production and the cost structure.

# Milestones of ProcessMonitoring



The company of Dr.-Ing. K. Brankamp Prozessautomation GmbH was established on 1st October, 1977. This firm was one of the companies ensuring that those responsible for production took up and focussed on subjects such as unmanned or ghost shifts, automation and quality.



## Prozessa-SE.

The Processa SE was the first ProcessMonitoring system by BRANKAMP. As of the year 1977, the equipment was manufactured in Erkrath. By the way: Same as many others of its generation this model is still fully functionable.



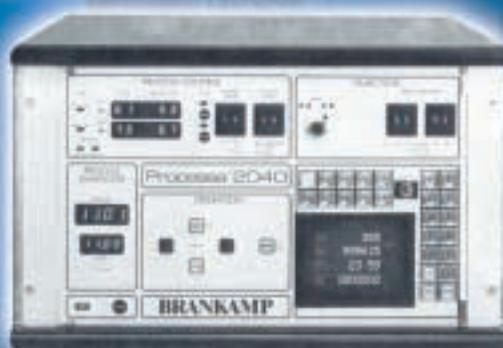
## Widatronic 8030.

An aid in demand for process optimization: With the Widatronic 8030 for NC machines the cutting force could be utilized not only for quality control but also for optimization of the cutting process or machining operation.



## Prozessa 2040 und 2050.

A BRANKAMP bestseller. Until this date, the popular Processa 2040 systems are still used in production. The same applies for the compact ProcessMonitoring system Processa 2050.



# Milestones of ProcessMonitoring

Modern production without ProcessMonitoring inconceivable. The technology was developed by BRANKAMP 25 years ago. Quite some things have changed since the first ProcessMonitoring system came off the line in Erkrath in 1977. Now as before, the innovations by BRANKAMP are giving the beat to progress.



## BRANKAMP M 400.

The symbiosis of function and design. In the year 2000, BRANKAMP is putting on the market the M 400 designed by star designer Felice Tollini. The round innovation is quite something: It offers operators the possibility of accessing any menu by simply turning and pushing of one single button.

## BRANKAMP GT-Series.

The latest PC technology is being employed not only in the ProcessMonitoring systems. BRANKAMP has made computers fit for workshops. The industrial PC series GT has been developed exclusively for application in rugged plant environments.



## BRANKAMP PK 6000.

ProcessMonitoring on presses, stamping machines and rolls - here, the PK 6000 as the BRANKAMP carthorse offers the optimal solution. It combines absolute top technology with a maximum of operator convenience.



## BRANKAMP 100.

The BRANKAMP 100 is the automatic tool and machine protection system for all production equipment.



**BDE, BRANKAMP DC 5000 Industrial Data Acquisition System**  
**Simple. Innovative. Modern.**

The actual version 4.3 of the BRANKAMP DC 5000 is a future-oriented industrial data acquisition system for all areas of modern industrial data capture. From a machine-oriented diagnosis package up to a cross-area overall system BRANKAMP is offering a modern industrial data acquisition system with simple operating surface.

BRANKAMP is offering everything as one single source of supply: A wide product range of terminals and control station computers with intuitive operating surface. Networking with bus, token ring and ethernet systems or via radio control permits adaptation to any specific application with fully automatic data acquisition and maximum transparency of your production. Almost without any manual inputs.

The modular concept of the DC 5000 system features maximum flexibility and tailor-made solutions to satisfy your specific production requirements. Online information is the key to a fast reaction to production problems and will indicate immediately where your rationalization reserves are. Optimal machine utilization is the result of efficient monitoring of actual machine

conditions. The TDE/MDE module will show you online your free utilization potential.

- Graphical workshop layout
- Real-time STOP and GO display for each machine
- Up-to-date utilization ratio reports
- Real-time machine status display
- Graphical display of productivity behaviour
- Run-time factors
- Utilization ratios per operating area
- Time class statistics „Production/Stop/Setup“
- Process, stop code memory

- Process, stop and activities code diagnosis

Via the ADE module, orders will be introduced into the workshop control on realtime basis, the sequence of operations on the main control station will be changed, if any when necessary, and paper-free allocations to the workplaces will be made.

Order logins and logouts will be effected directly at the terminal. The following functions, inter alia, should be used:

- Workshop overview of machines occupied and/or non-occupied
- Indication of order log per capacity group
- Sequencing of orders on real-time basis

- Graphical occupation planning, paper-free allocation
- Informative scope of orders per workplace
- Online order diagnosis, manufacturing order management
- PPS coupling with convenient import/export data

Recording of digital or analog measured values such as temperatures is requested to a growing extent for production, in order to back up quality documents. Following these requirements, we have made it possible to record up to 15 analog process quantities by means of the PCC module.

- Current measured value curves as real-time display
- Numerical measured value display
- Measured value trend forecast for 2 hours
- Measured value progress for 24 hours
- Protocols / printout of individual values

**REPORT PRINTOUTS**

The efficient reporting system comprises a wide range of standard reports. In addition, the database will permit an open configuration of individual queries.

- STOP and GO protocol
- Workplace protocol
- Job or order report
- Daily shift output report
- Downtime report

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