

# keep moving

## **WORTH KNOWING**

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Focal theme: Efficient energy page 3

## **WORTH DELINEATING**

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### **Actual projects:**

Plant engineering | double pack for the renaissance  
of enameled hot water heaters page 4

Automation | modular process control  
for customized plants page 5

## **WORTH INFORMING**

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People at KÜBLER ESSIG  
Worldwide and at home page 6

# Editorial

2



## Dear business associates, dear interested readers

Welcome to KÜBLER ESSIG

With this journal you will get to know our company more specified. We would like to give you answers to following questions: Who we are. How we work. What's our fascination. What's our incentive.

We describe selected projects out of our competence areas automation and machine construction and give you a comprehensive insight into our business activities.

But we do not only talk about ourselves. We also are competent listeners: For your tasks. For your requests. And if we once have accepted a problem, we are enthralled until a convincing solution releases us. To proceed.

Only movement can use chances and create innovation. This conviction does shape our activities. The journal therefore should inspire you to equip your company with future oriented technologies to subsist against competition.

Get in contact with us, rivet us. We are looking forward thereon. In the meantime please have an informative and sportful reading.

**Joachim Kübler**

General Manager  
Automation +  
Machine Construction

**Karl Otto Heim**

General Manager  
Machine Construction





# efficient and safe

## 1 EFFICIENT ENERGY

### Stop air. Frequency converters in ventilators and pumps save energy up to 30%

Conventional pumps and ventilators have high potential to save energy. These machines work during the whole operation time with maximum speed dependent on their construction. A considerable waste of energy. The actually required volume resp. support performance is on average obviously lower than the maximum value. It is nonsensical to use mechanical reducing valves to control the volume flow. While they reduce the air supply, the motor even though runs with maximum speed and maximum demand of energy.

#### Speed variable units save energy and at the same time spare mechanics and environment.

Who would like to save operating costs and spare environment uses speed variable systems with frequency converters. They regulate the support performance of airstream machines by the actually required demand in production process. The motor takes up the necessary power, only. At pumps and ventilators this exact support control leads to an energy saving up to 30%.

A further economical advantage is the reduction of wearout at motor, pump and ventilator. Attendance efforts can be reduced and lifetime enhanced. Based on these savings in energy- and operation demands investments for frequency converters amortize within few months.

#### Calculate saving potential fast and easily

Real savings by using frequency converters, amortisation of investments in individual cases and applicability of frequency converters can easily be calculated by PC programs. KÜBLER ESSIG are competent partners therefore.



## 2 SAFETY ENGINEERING

### Take responsibility: Programmable safety controls protect operators and machines.

In order to overtake responsibility for staff members it is not necessary to plug machines and devices into a fixed concept of mechanical safety solutions. This is no longer up-to-date and offers less scope to enhance and modify plants. KÜBLER ESSIG therefore rely on flexible programable safety controls for a longer time.

#### Everything or nothing – that's past

In the first solutions on software base fit machines better to safety requirements. The logic control is able to initiate different behaviours on single parts of machines: Stop, run back or continue with reduced speed. In case of a safety risk it is no longer necessary to stop the complete machine and

raises the availability of the machine without prejudice to the operator.

#### Flexible reaction to new requirements

A further strength of this new technology is visible, if a machine has to be enhanced or modified. Additional safety functions can easily be integrated, changed requirements can be fitted to the existing system. This is also valid for the implementation of new legal guidelines and regulations. We from KÜBLER ESSIG always think of people, when we prepare and plan modern safety solutions. The result is a machine for the operator: ergonomical, user-related and safe.



## 3 ECONOMICAL FOUNDATIONS

### Mathematics offer amazing solutions

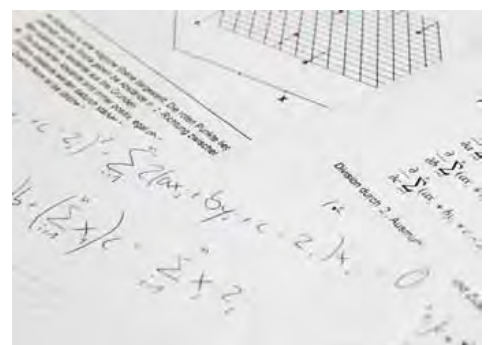
If apparently nothing works, if classical software- and CAD-programs do not offer convincing solutions, we here at KÜBLER ESSIG include a really ingenious partner into our developments. Our mathematician Werner Mienhardt likes obviously unresolvable problems best.

He is able to transform technical questions into mathematical formulas and models. The results are creative and analytical solutions, which lead to improvements

For example, we have obviously upgraded the quality examination of a component based on mathematical calculations. The component must have a nearly plane connection surface for further use. Five measuring points are verified by means of a regression analysis, if they lie on the same level, and if not, what is the greatest divergence. In addition the position of the detected level is specified in relation to the

reference level. Therefore the angles between reference level and calculated level have been determined. The solution has been innovative and very precise. The insert of traditional measurement methods with measuring devices had not been necessary. Also the precise clamping of the component into the measuring device could have been spared, because the underlined mathematical proceeding also detected the position of the component in addition to the evenness. Therewith the measured values have been interpreted correctly in any case.

Werner Mienhardt convinced us of the utility of theoretical abstract formulas for the practical application of machine construction in many different areas of application. If necessary KÜBLER ESSIG will access to mathematical methods for the development of most efficient machines also in future.



### 1 AUTOMATION

#### With velvet gloves and eagle eyes

The production of high-sensitive solar cells requires specific demands on automation solutions. Sheer wafers have to be separated almost contactless, examined comprehensively and transported carefully. Since many years KÜBLER ESSIG support Schmid Technology Systems GmbH in Niedereschbach in the development of individual automation solutions.

Only high-quality wafers can be fed into the expensive production process of solar cells. In order to meet this central requirement of solar cell manufacturers Schmid Technology Systems GmbH in Niedereschbach have developed the so-called Load Cell Line. This machine is the beginning of the production process

The assignment is to separate the sheer wafers, to find damages with various measuring systems, to separate bad parts and to transport good parts to the next stage.

It is a task, which requires a lot of sure instinct, to control and automate this process, to document the process data and to integrate the machine into the whole production process. For a careful selection of the sensitive wafers mechanics, measuring technics and super-ordinated controlling systems have to be adjusted exactly.

#### Never get out of step

The major challenge is the integration of a huge number of measuring systems with various

operating features. Camera systems for wafer break recognition, determination of geometrical errors,  $\mu$ -crack-determination and sighting of surface errors have to be integrated. Systems for double-wafer-detection, life-time measurement or sheet-resistivity measurement have to be added.

With a most flexible software KÜBLER ESSIG transform the high requirements of the Load Cell Line and integrate the requested measuring systems according to customer's requirements.

Our programers must have a view on prescribed small cycle times of approx. 1 sec. when they modulate and integrate all these interfaces. Most problematically in this connection are camera systems, which have to be stopped for recording. Because of perfected process control combined with most modern servo technics we have always been able to redeem the required cycle times.

We continuously develop individual solutions by intensive communication with our purchasers and system suppliers. In worldwide work assignments we put in operation the Load Cell Line for Schmid-customers and provide minimal breakage rates, reliable quality sorting and significant data documentation. Therefore the corporation can obtain important orders.



### 2 PLANT ENGINEERING

#### Double-package for the renaissance of enameled hot water heaters

Neue Emailierwerk Peterzell in Black Forrest have specialized in the industrial enameling of steel parts. With the new wet enamel device for hot water heaters from KÜBLER ESSIG the tool manufacturer can react flexibly and immediately on changing workpieces and consolidate their position against competitors.

Now we are requested stronger: Modern solar energy leverages the traditional hot water heaters to a new boom. The proved inner wall enameling of hot water heaters is essential also in the 21st century. No other refinement can guarantee the purity of drinking water in steel boilers in such a reliable, hygienic and non-polluting way. Enameling has proved since centuries.

And so it is not surprising that Neue Emailierwerk Peterzell have reacted on the increasing demand with the purchase of a new device from KÜBLER ESSIG.

Maximum flexibility and most modern safety technics at low cycle times: These have been the tasks for KÜBLER ESSIG to construct and build-up a new wet-enameling device for large hot water heaters.

We have solved the task with a clever double-package. By use of an intelligent combination of lifting technic and device one worker can equip two enameling stations at the same time.

#### Fernier adjustment and various enameling programs guarantee flexibility

In order to enable fast and flexible conversion, the span- and fixing features at the stations have been fitted with fernier adjustments. Therefore they can be adjusted to changing sizes and forms of work pieces with low effort. Dependent on the required enamel recipe the worker starts up the suitable program via user-friendly operating panel.

Neue Emailwerk Peterzell have acquired experiences in enameling industrial work pieces for 60 years. Thus customers have high expectations. With the new device from KÜBLER ESSIG the company can react on customer's requests immediately and flexible and is well-furnished for the future.





### 3 AUTOMATION

#### Process control as modular construction system for customer-oriented devices

Lacquer devices from SEHON GmbH can be compiled of standardized assembly units and modules according to customer's requirements. For these flexible machine systems KÜBLER ESSIG offer especially coordinated software tools, which can be integrated into the whole system without any problems.

SEHON Lackieranlage GmbH in Gechingen is one of the most innovative producers of lacquer- and drying devices in Germany. Success metrics are modular constructed devices in combination with standardized assembly units according to customer's requirements.

For automation and process control of such complex systems SEHON rely on the professional competence of KÜBLER ESSIG. Already during planning it had been defined that the new process control generation has to support the modular technology. SEHON expected a safe, extensible and user-friendly system. These requirements have been transformed with a modular construction system. Single components can be fitted to several device types most efficiently. The software is set-up in modular type and

enables an easy integration, if the device should be modified or extended later. Remote maintenance is possible by an optional modem.

The control unit reads in cyclically information like temperature, humidity and cabin compression. Thereon the device controls for optimum lacquer conditions in the cabin. By frequency converters incoming- and exhaust air ventilators always generate lightly excessed pressure. To avoid that dirt particles attain the device and influence the lacquer result. If no spaying air will be extracted for a longer time, the device switches to economy mode automatically. The ventilators work with lower speed, the quantity of air is reduced. The result is lower energy consumption. If the lacquer process is continued, the quantity of air is automatically increased.

The S7-control unit is combined with a graphic touch-panel by an integrated ethernet-interface. With the intuitive operating surface the device can be handled save and uncomplicated. SEHON have been convinced exceedingly of this sophisticated and extensible control system, which is

inserted successfully in all delivered devices worldwide. In close cooperation with SEHON we will contribute our technologies and experiences for the development of new types of devices.

### THE STANDARD FOR SUCCESSFUL PROJECTS

#### Impassion

Many people presume, that the success of a project depends on know-how and experience of constructors and programers. Of course these are basical assumptions, but by far not enough to design and construct automa-

tion solutions, machines and devices for the progress of our customers. Necessary is impassion. We are impassioned when a new project originates tension, is exciting and awakes our enthusiasm. This impassion is motivation for

us to ever enhancing our own objectives. We learn by experience: Impassion infects. The proof is that well-known corporations confide us since many years.

### 4 MACHINE CONSTRUCTION

#### Finest! Aluminium wheels for premium cars



Correct pre-treatment, mean coating and temperature course during the burning-in process give aluminium wheels of the premium class their noble look-out. The corporation OTTO FUCHS OBERFLÄCHENTECHNIK in Leonberg meet the high requirements of the market with a new double-chambered dryer from KÜBLER ESSIG.

Elegant shyning aluminium wheels are the epitome of exclusiveness and sportiness of premium cars. OTTO FUCHS OBERFLÄCHENTECHNIK coat with machine- and manual operation aluminium wheels for exclusive cars and motor-bikes and is on top of suppliers in this market segment since many years.

OTTO FUCHS continuously upgrade the production process in order to meet the increasing requirements in quality. To modernize laboratories and devices for manual wheel coating, OTTO FUCHS invested in a new chamber dryer. The plant concept developed from KÜBLER ESSIG has two drying chambers for burning-in the coating of aluminium wheels.

The biggest challenge:

For an absolutely even distributed colour spreading and an excellent grip of the coating at burning-in the lacquer or powder lacquer only less temperature variabilities in the oven are allowed. In order to guarantee this our constructors have developed two modules.

Once the dryer has been extended by a channel head. From here a circulation system with adjustable ventilation dampers provides the dryer during the whole exhaust air area permanent with constant hot air. A second module ensures absolutely tight closing lift doors. An especially developed sealing ensures, that particularly on the bottom no cold air can enter the chamber. A specially developed reception device protects the lift doors of accidental descend. This refined safety solution completes the device conception.



## CLEARTEXT KÜBLER ESSIG briefly

With ideas and innovation KÜBLER ESSIG offer individual technologies for the production. Our competence areas are automation technics as well as machine- and plant construction.

Our performance is subdivided into four segments:

### Automation

This term of reference includes hardware planning, software engineering and data technics. We configure, process and structure ways to the final product. Documentation, networking and analysis of product-related process data become significant more and more.

### Machine- and plant construction

Machine business is consequently oriented towards operation technics with integrated measurement and control technics and towards devices for surface treatment, especially enameling. We emphasize aesthetic, function, efficient energy and safety.

### Retrofitting

In this segment we concentrate our activities on modernizing and optimizing existing machines and devices. This comprises the flexible adaption to new or changed production requirements, the realization of energy saving potentials and the assimilation to actual safety regulations.

### Service and support

We offer service management all over the world, immediately via online-support or with our service team on-site and in short term. Beneath classical error analysis and emergency main-tenance we also offer analysis of profibus networks with most modern measuring technics.

Detailed information about our performance please find on our new website: [www.kuebler-essig.de](http://www.kuebler-essig.de)

## INSIGHT Our performance portfolio

Automation	Machine-/ Plant construction	Retrofitting	Service
<ul style="list-style-type: none"> <li>• Hardware planning</li> <li>• Software engineering</li> <li>• Data processing</li> </ul>	<ul style="list-style-type: none"> <li>• Operation technics</li> <li>• Devices for surface treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Modernization</li> <li>• Energetic optimization</li> </ul>	<ul style="list-style-type: none"> <li>• Online-support</li> <li>• Service on-site</li> </ul>



## CORPORATION People at KÜBLER ESSIG worldwide...

Since corporate foundation in 1994 we from KÜBLER ESSIG are underway worldwide in order to develop new market areas for us and our customers.

The joint founder Rolf Essig is infrequently met in his office. On four continents Rolf Essig and his cooperators are employed with software engineering in various branches and have meanwhile put into operation many different kinds of machines and plants.

In the last years the implementation of cell- and module production lines for the solar industry accrued as new focal point. Projects in France, Italy, Sweden, Norway, South Korea, Taiwan and Singapore explain the growing significance of renewable energies worldwide.

To operate internationally requires continuous readiness for advanced education and highest possible flexibility. Every new project sets new tasks and challenges. To engage ourselves and pass successfully, is part of our self-conception.

### ... and at home

Together we build a team of 16 staff members and one trainee. Our technicians and engineers know about the expectations of our customers and are determined to fulfill them. With sense and heart they overtake responsibility, create solutions and take initiative. For your corporation. For your success.