KÜBLER ESSIG

on arrival.

Automation + machine construction

10.2011

Editorial

Dear Reader!

We have burst forth with an ever extended range of services to provide new ways and methods for our customers.

Just two years ago we complemented our established automation machinery system with yet more machinery and plant engineering systems. This enabled us to finally connect electronics and mechanics early on in the design and construction process in order to offer our customers powerful and complete solutions.

Since then these extended services have allowed us to achieve important milestones and win the trust of many well-known companies. And in the future this earned trust will be the catalyst for even more technological advancements. Moreover our next milestones are defined by our customers' exacting and sophisticated tasks. To this end, we are looking forward to taking on this challenge and from here on end we have only one ambitious mission:
Take the chance now !

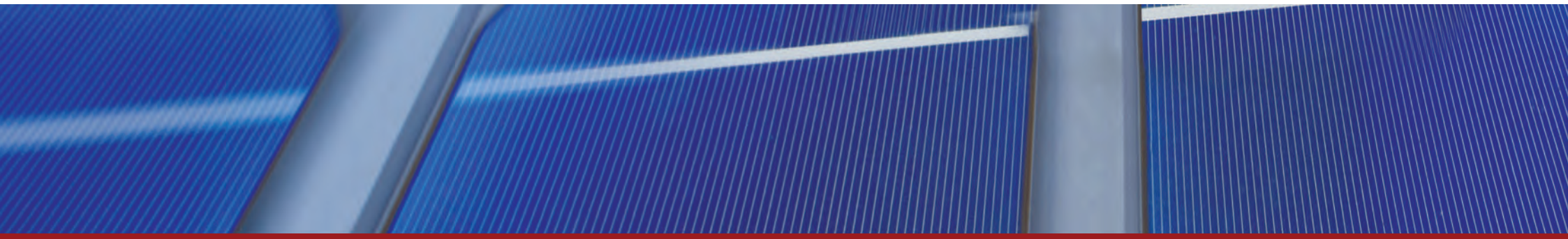
And the 2011 Journal that you now holding in you hands, is a documentary of these exciting stages. We cannot and will not completely deny our pride in this accomplishment. Ambitious targets normally cannot be achieved without passionate dedication and a meticulous search for more efficient and creative solutions. Moreover this needs to be accompanied by the partnership and inspiration of our clients.

This joy and tenacity in achieving demanding tasks sets the team of KÜBLER ESSIG apart from the rest. For us these are the very qualities which drive us to continue on this chosen course. We look forward to you giving us the next milestone to achieve. We will do our utmost so that our services are well received by you.

Kind regards

Joachim Kübler
Managing Director

Karl Otto Heim
Managing Director



CAMERA SYSTEMS: AT A GLANCE

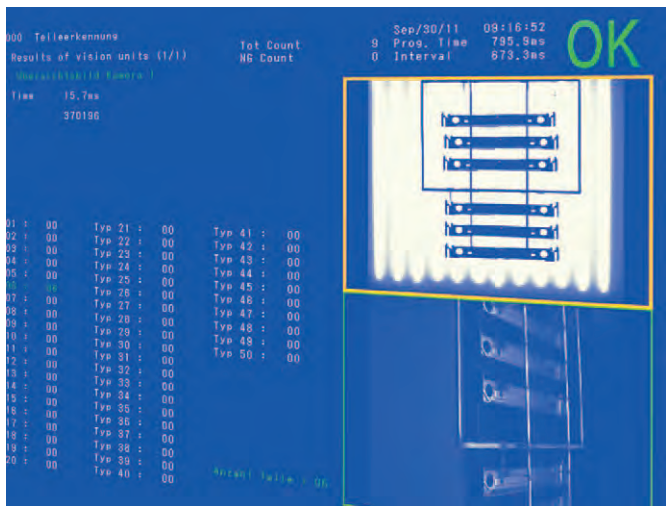
August 2011 | D - 75015 Bretten | NEFF Appliances GmbH

Sorting, counting, registering/recording, measuring, reading, inspecting und checking positions – and for these many diverse tasks KÜBLER ESSIG utilises camera systems in automation technology, production and quality assurance.

We can demonstrate this state of the art technology at NEFF in Bretten – the appliance manufacturer for the handling of work pieces during the enamel coating line. A camera system takes on the task, for example, of recognising the amount as well as the type of hanging pieces of different kitchen stoves.

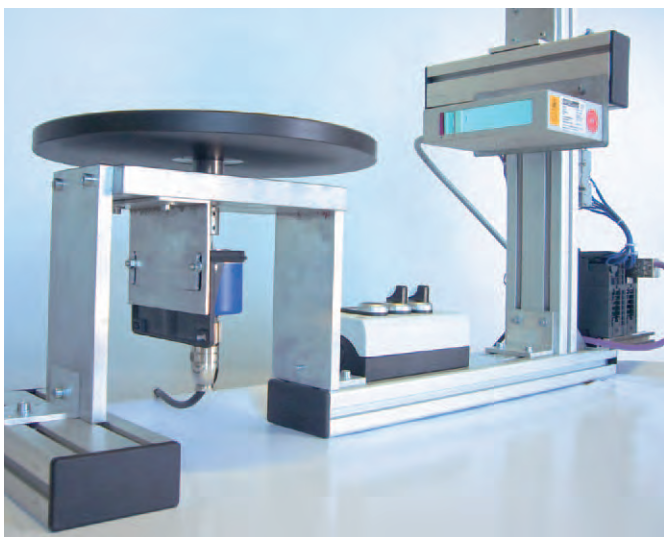
The camera system also keeps pace with the production's speed. The identification of the parts happens "on the fly", thereby recognising and detecting the slightest deviation and or difference during transport. NEFF also requires that the part recognition system recognises and records the work piece's dimensional characteristics. Therefore a second camera is employed for this task. It views the object from another angle and assesses the work pieces' dimensional characteristics.

The image analysis is carried out by using a combination of characteristics specific to the model. This analysis indentifies the parts, registers the amount and checks if the parts are correctly hanging on the product conveyor. All results are then sent on to the primary plant control system and there the recorded data is forwarded to the following production processes. Manual input errors are eliminated during automated material handling. Thereby guaranteeing a smooth production flow.



INDIVIDUAL MEASURING EQUIPMENT SURPRISINGLY DIFFERENT

October 2010 | Secret Goal | Scientific mission



Equipment for measuring and monitoring of production processes is an indispensable part of Quality Assurance. Problems arise if the measuring tasks are not managed effectively by the use of standardised systems. KÜBLER ESSIG has earned its reputation in this area as a solution provider for individual projects. The image of laser measuring equipment illustrated here is only one such example. We developed this measuring equipment especially for measuring the circumference of different geometrically shaped forms.

And to this end, all formulated technical questions are converted into mathematical formulas and models by the triangulation of the surface; circumference is determined as well as the minimum, maximum and average diameter. In the calculation's first step the body's centre of gravity is determined via the measurement data and then all of these measurement readings are referenced to this body's centre of gravity. This mathematical procedure allows the body of an arbitrary shape be placed at a completely arbitrary location and arbitrarily adjusted at the measurement point without influencing the calculated dimensions. Therefore, the measuring procedure is substantially simplified as adjusting the measured body is no longer necessary and there are no constraints regarding the outside shape of the body. However the body needs to be a convex shape.

We have surprised our customer in two respects: First by providing excellent system integration into existing operating sequences and next by the costs of the measuring instrument: because our individual solution was less expensive than a standard product.

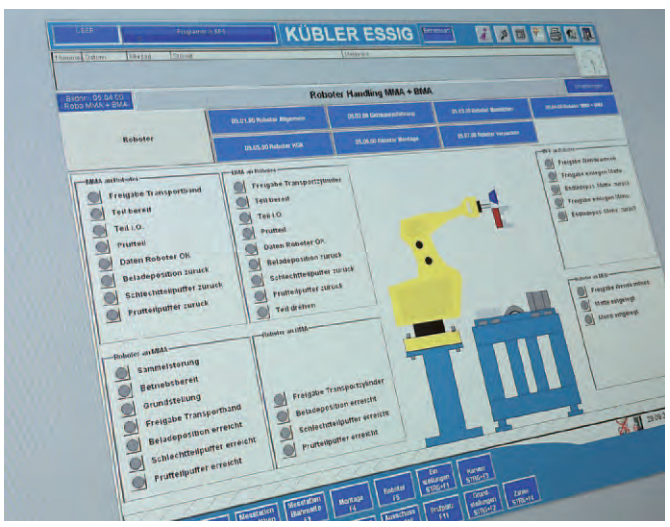
DATA PROCESSING TECHNOLOGY: LEARNING FROM NUMBERS

August 2010 | D - 78078 Niedereschach | SCHMID Technology Systems GmbH

We at KÜBLER ESSIG take the responsibility for our company's success very seriously. We know exactly: That only with best quality can you survive in this world of global competition. Visualising and capturing the multitude of data and key figures from complete production lines is becoming ever more important for Quality Assurance. As the evaluation enables the error sources to be pinpointed, these errors can therefore be rectified immediately.

A perfect example of this type of full scale project – which we designed and installed – is the production line at SCHMID Technology Systems GmbH, Niedereschach. SCHMID is a market leader in the manufacturer of special purpose machines for solar module production. We separated their production lines into individual modules so that their customers can examine the product's technical data individually and carefully. The challenge was to provide the data collected from measuring systems and components from different operating equipment which had been collected through various communication paths for the computer based log in and visualization system.

The material and batch data for the production cycle products are registered as well as the plant conditions, the data for quality, production and output. Diagrams of the data facilitate the evaluation and comparison.



For each solar cell a digital data sheet is created at the end of the production line for quality management, product monitoring and archiving.

The management of a sophisticated alarm system was also important to us. The system should create a foundation in order to be able to assess the effect of the production failure over the overall process and product quality as well as localising the error source.

All fault and operating error messages are stored and linked in a data base. So that the frequency of errors as well as weak points in the system are analysed during the process and the necessary counter measures are then employed. Therefore, this is increasing product quality and ensuring maximum plant capacity and productivity.

ALWAYS NICE WHEN EVEN

September 2010 | D-33325 Gütersloh | MIELE

Electric dip enamelling (EPE) is the winning horse for whoever needs to apply absolutely even coats of enamel and achieves the perfect surface quality. It is a process by which the work pieces are dipped into an enamel bath. The charged particles migrate to the work pieces by means of the electrical field in the solution. This electrophoretic application results in a thick monolayer of enamel particles on the work piece surface which later, after just one bake guarantees the desired even and high quality enamel coating. Yet another benefit of the EPE process is its economical handling of the enamel itself. After being immersed and coated in the bath, the work pieces are then rinsed off with Permeat and the remaining excess enamel is then captured. This captured enamel is up to 100% recycled.

MIELE developed the EPE process themselves many years ago and true to its own guiding principle – "always better" – is continuously optimised. It was an exciting challenge for KÜBLER ESSIG to be commissioned to modernize the baking chambers for the EPE coating plant. For this reason, the Pre treatment system was overhauled and updated utilising modern and precise conveyor technology by KÜBLER ESSIG. In fact the enamel basins plus the rinsing baths of the enamel basins were entirely re-designed and built.

The heart of the system is the specifically developed and designed handling and conveyor system. It is responsible for reproducible operational sequences plus the quality of the coating. From the very start KÜBLER ESSIG relied on its core competences: a harmonious symbiosis of sound, stable mechanical engineering and the most modern control technology. The strict adherence to safety standards as well as operational and low-maintenance systems ensures a safe interface between humans and machine.

As a result of this, KÜBLER ESSIG set up a coating line at the production location in Oelde which even surpassed the high expectations of our client. MIELE was not only convinced by the excellent and even coating quality of the enamel but also by the reproducible accuracy of the enamel coating which showed virtually no variations in quality.

This project proved just how KÜBLER ESSIG was able to reliably adhere to its customers' deadline driven requirements: The coating line overhaul and modernisation was completed in 2010 during the MIELE summer break.

FOR ALL CASES: ENAMEL COATING SYSTEMS ACCORDING TO MODULAR DESIGN

May2011 | D-83301 Traunreut | BOSCH SIEMENS Appliances

KÜBLER ESSIG's flexible production systems is the foundation for our customers to be successful in global competition. Our clients need to be prepared and equipped for all eventualities whereby they are able to react quickly and cost effectively to new product developments and or technical requirements at individual production facilities.

Moreover when awarding the contract, our client BOSCH SIEMENS made an important demand to KÜBLER ESSIG for a powder-enamel coating plan foe their location Traunreut close to Munich. The requirement: Coating systems for ovens and flat parts which need to be easily adapted to changing production processes.

We fulfilled this requirement by designing a plant complete with modular design. These different main modules can be assembled together just like LEGO® bricks according to their requirements for coating technique, type, shape and size of the work piece. In just a few steps a cabin for baking ovens can be converted into a cabin for flat products such as flat parts for stoves. And just as simply and easily various coating applications can be used. The powder enamel can be applied on modules either by a robot, a lifting device or manually. There is also a module "conveyor technology" for various other parts or modules. Different transport systems can be employed here, for example, monorail conveyors, power and free or belt conveyors.

At the production location in Traunreut, the system applies the enamel powder via a robot using the line tracking process in combination with an electrostatic powder spraying mechanism by means of automatic spray gun's. The benefit of this module combination is that during downtime the optimal movement and coating process can be programmed per work piece. Later on in the process, the kinetics of the robot application is synchronized during the continuous drive operation according to the speed of the part transportation. This leads to time saving and high productivity.

There is a special coating program for each work piece. This coating program is automatically assigned to the work pieces by an identification system at the cabin intake. An easy to use touch screen visualization system displays all important process parameters to the operator. These displays are always accessible and permit the operator to be very flexible in order to carry out procedure dependent corrections to process parameters for the general and daily set ups.

All new coating line system modules as well the existing customer transportation system and the subordinate maintenance centre were connected together through a data network.

KÜBLER ESSIG preassembled the system, carried out a pre-operational start-up and after a preliminary approval by BOSCH SIEMENS the system was delivered to the plant in Traunreut. And there it was put into operation and then handed over to production on schedule. Today the plant is setting new standards in terms of flexibility, coating quality and productivity.

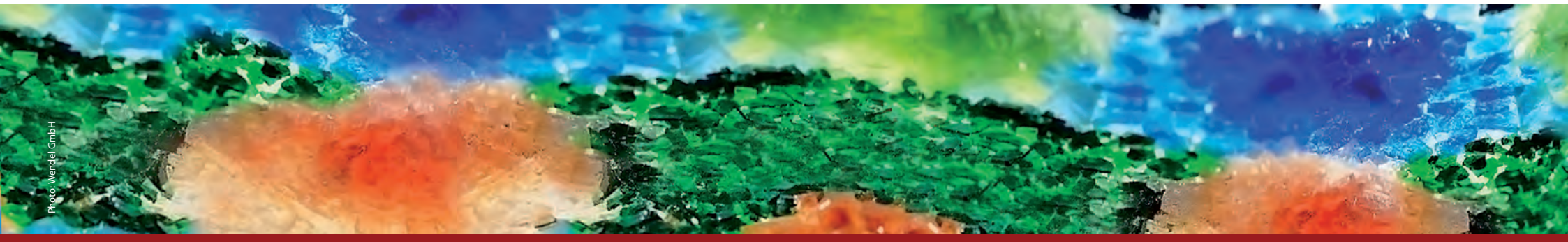


Photo: Wendel GmbH

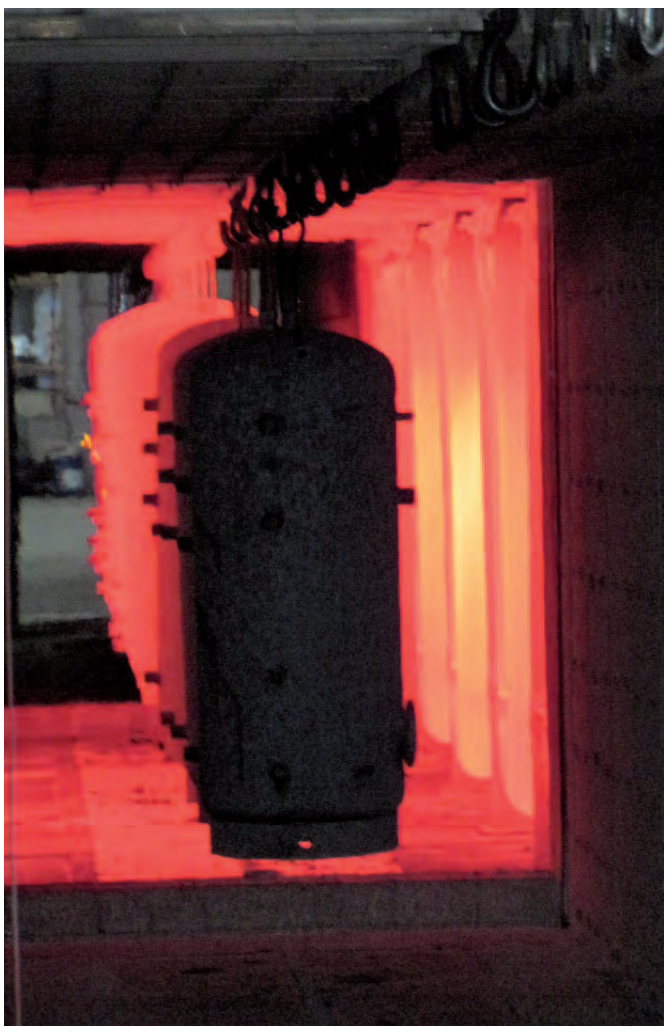
UNSUPPORTED BUT STABLE

January 2011 | Far East & Black Forest | Retrofitting furnaces

Every now and then we travel quite a distance in order to reach our customers. When it comes to retrofitting furnaces, we are globally active in a variety of projects – from the Far East to just around the corner in north Black Forest.
Our assignment in Asia included the overhauling of an enamel furnace. The core task was the partial renewing of the insulation. The main weak spot of the previous insulation system was that the fixing clips for the insulating mats were worn out by oxide scale. In order to avoid the costly exchange of clips at regular intervals, we developed – in close co-operation with our specialist in high temperature insulating material – a completely new insulation concept. It is unsupported but stable", because it does not require any intrusive fixing pins and clips inside the furnace interior room.

This project is a perfect example of KÜBLER ESSIG's innovative solutions for retrofitting furnaces. Our broad experience ranges from Control Technology to systems and furnaces. We update and modernise various models for diverse targeted applications. We understand that connecting new software based control technology with innovative furnaces enables both areas to play to their strengths. We retrofit conventional hardware temperature and negative pressure controllers with SPS software controllers. Thereby our customers can adapt the firing operation better and more accurately to the system's optimal procedure process. In addition, the operator is able to see – at all times – all displays for process parameters and trend curves by means of a convenient user interface.

These furnaces retrofitted and modernised by KÜBLER ESSIG are run at temperatures up to 1.000 °C. These projects are reason enough to take over particular responsibility for energy efficiency and environment protection. Together with our supplier we are looking for new ways and solutions to reduce energy consumption to be more energy efficient. For the very first time we have put into operation the latest generation of high-speed furnaces complete with a special heat exchanger. This enables an extremely high pre-heating of the combusted air and therefore maximum output is achieved. Its efficiency is approx. 15 per cent higher than by using comparable systems. Additionally it can be switched from standard operation to so-called FLOX® operation (fire without flame). This type of operation drastically reduces the nitrogen oxide emission. Thus the furnace is distinguishes itself by its environmental friendliness.



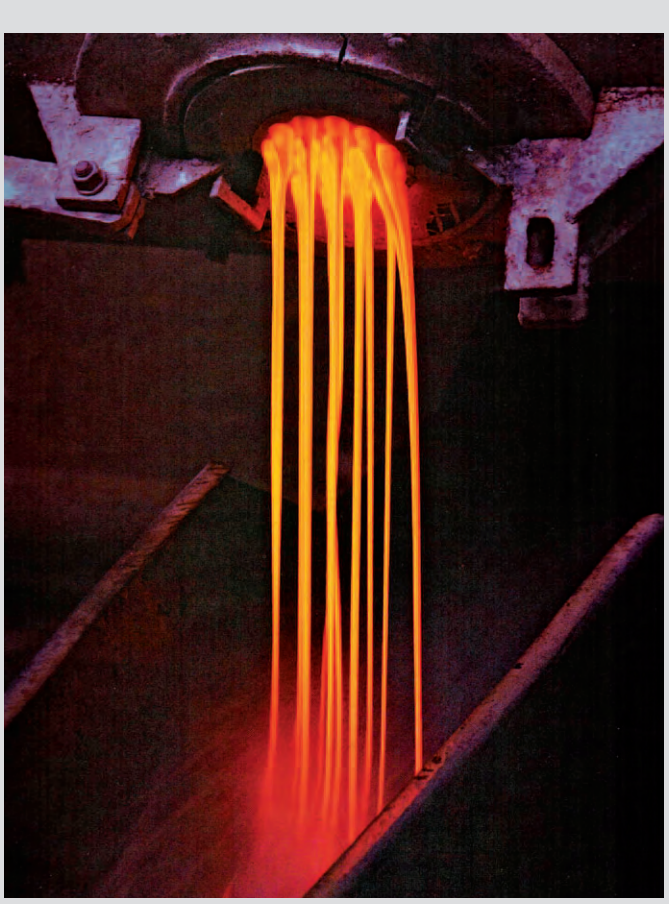


Photo: Wendel GmbH

ENAMEL: FROM JEWERLY TO INDUSTRIAL MATERIAL

For almost three and a half millennium, enamel has shaped the art and crafts world of various stylistic periods and world religions. Enamel is a special silicate glass. Since the beginning of industrialization in the 19th Century, the technical advantages of enamel coating on iron and steel appliances was known and recognised. Because when you put glass onto steel, you combine the stability of steel together with the extraordinary properties of glass.

Enamelled surfaces and materials are resistant to wear and tear, frost and are heat resistant, acid-resistant, durable and colourfast, hygienic and toxically clean – just to mention a few of its most important properties. No wonder that enamel constantly acquires new areas of application, in the household, architecture, industry and research.

Various enamelling methods
This glasslike mass results from melting inorganic silicates and oxides. When the melting procedure is prematurely interrupted, this process results in enamel frits.

Enamel can be processed as wet- or powder enamel. For the wet enamel process, the enamel frits are pulverised into a ready made solution. Water, clay, quartz, salts and if desired colouring materials can be added. In a wet enamel process, the parts can be coated by dipping, spraying, floating or electrophoresis. After drying the enamel is burned for three to ten minutes at temperatures up to 880 °C.

The powder enamel is produced by dry grinding the frits and can be applied to the work pieces by spray pistols. The burning process is similar to the wet process. In both processes the glass melts together with the metal and develops into a new composite material – enamel.

Glass onto steel requires high-tech production
It does not matter whether you decide on wet or powder enamel, the production processes are automated. And energy, material-efficient production sequences, the highest level of precision and reliable quality controls is always required. The objective to always achieve a much as possible – even a thin yet adhesive enamel layer. We at KÜBLER ESSIG make every effort to meet these challenges head on and which in turn makes us interesting partners for our clients: our wide range of services includes our extensive know-how from automation with respects to conveyor technology to the construction and building of machines and systems.

WE WELCOME NEW TO OUR TEAM

Edith Baitinger

She supports us by her experience and know-how in Design and Project Management team.

Dipl. Ing. Walter Holzäpfel

His area of expertise includes the development/ design and construction of machines and systems.

Silke Metz

As the accountant, she carefully monitors and supervises Controlling.

Daniel Hammann

He is our apprentice in electronics and automation technology.

Minghui Zou

As a project assistant she takes cares of and is responsible for our clients on site in China.

Lisa Guler

As the first apprentice industrial clerk she leads the way for the development of the junior staff at KÜBLER ESSIG.

LIVING DIVERSITY

At KÜBLER ESSIG we gladly get involved in taking care of and fulfilling our customers' numerous unique jobs and challenges. However at the same time we know that we need a wide range of talents and characters.

That is why we give our employees the space to try out their ideas. Only like this it is possible to make a whole from these diverse abilities and know how – rich in creativity and willingness to perform.

And our staff members appreciate this. Many of them have been with us for years. Our six new team members have given us new drive and energy. This addition makes us now a colourful new mix of more than 20 team members. When adding to our team we always ensure a balance between youthful engagement and competence and experience. And now we are well prepared for the future.

KÜBLER ESSIG is worth gold.
The specialized jury of the regional contest "Bright Lights of the economy 2011" came to this result. "Glossy star" is awarded to companies to recognise their top performance and valuable contribution for the economic development for the region north Black Forest.

SUPPORT DIVERSITY

Best annual trainee
Among the 149 graduates of the Heinrich Schickhardt School in Freudenstadt, our apprentice Nino Walz was awarded the prize for best annual trainee. District administrator Klaus Michael Rücker honoured the outstanding technical achievement of the electronic engineer for automatic control engineering and also the human values of the twenty-year-old one. We are very proud of our top talent and are pleased to show Nino new prospects for the future in our team.

Study at the dual college Stuttgart (DHBW) campus Horb
For the first time we offer young talents a position to study mechanical engineering as well as electrical engineering at the DHBW Horb for the degree of a Bachelor of Engineering.

DIVERSITY AT A GLANCE

Automation machine engineering Network doubles power
As a full-service provider KÜBLER ESSIG develops and plans customer tailored machines and systems with diverse control- and automation solutions and builds them as the primary contractor.

Automation
Our competence is reflected in the technological breadth of automation solutions. We skilfully hit the right note for software applications and hardware elements in software engineering and hardware design as well as data processing and documentation technology. This is how we create process safe ways to the final product.

Machine and system engineering
The machine business is consistently aligned to conveyor technology and technique complete with integrated measurement and testing technology. In terms of engineering systems, we focus on surface treatment systems and especially enamel coating. We always raise the bar for function, flexibility, aesthetics, production security and cost efficiency.

Retrofitting
This segment combines activities for retrofitting and optimising existing machines and plants: Flexible fitting for new production tasks, realising energy savings potentials, aligning to current safety guidelines.

Service and Support
We provide support services globally: By our online – support or locally directly with our service support team. Besides the classical fault analysis and troubleshooting, we also analyze Process Field Bus networks using the latest measurement technology.