



**GRENZEBACH GROUP**  
**50 YEARS**



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A conversation with Rudolf Grenzebach

**“Entrepreneurs need to get things done rather than leaving them undone”** Many people regard Rudolf Grenzebach as “a true entrepreneur”. He is one of those who steadily built up things after the war and who succeeded in turning his father Josef’s small agricultural machinery business into an internationally active group of companies. He is one who had the courage to take risks, while holding true to one special principle with every new step: “You need to assess the risk realistically. If something goes wrong, you must still have a base from which to continue operating.”



**RUDOLF GRENZEBACH** celebrates his 80th birthday in July 2010. Even now, he remains an entrepreneur, born and bred.



**Mr. Grenzebach, what makes a good entrepreneur?**

I think it is primarily the ability to recognize developments in good time and set the correct course; and earlier than the competition if possible. Having the famous trick of putting the right people in key jobs. Then there is awareness of responsibility, humanity – towards employees, customers and partners. Reliability is an important aspect for me. And last but not least: a brass neck and plenty of hard work. I am firmly convinced that people who work hard make their own luck. This is because an entrepreneur in the best sense is someone

who simply gets on with things – rather than just managing.

**Is that a side swipe at modern-day managers?**

It is meant as quite specific criticism, in fact. When I look at the situation in many companies, it makes my blood boil. Managers who do not care about their company but only their personal progress are a danger to society. If they do not plan for the long term but merely cut budgets for short-term reasons because they simply regard employees as numbers, if they bleed their companies white then I can well understand if German businessmen have a bad repu-

tation amongst many people. It is dangerous because confidence in the economy suffers as a result. On the other hand, there are many upright entrepreneurs and managers, mostly in medium-sized companies, who bring a sense of responsibility to their business.

**This is a topic that is close to your heart. You have always made political statements and been involved in politics. Why?**

Because I believe that we have not been put on this earth just to indulge in fruitless introspection. We live in a community, and we should nourish it. Only then does our work, our existence, make sense.

Most of us can get involved – in the neighborhood, in a club, in the social arena, in a church. My path took me into politics in many cases and into committees and governing bodies in which, as an entrepreneur, I was able to get things done.

**You are regarded as someone who doesn't beat about the bush. Could it be that you are sometimes too blunt?**

I think I know what you are driving at... (smiles). Diplomacy is certainly not one of my strengths. Over the course of the years, my darling wife has had to pour oil on many troubled waters – in the company and in our private sphere. But that is the nice thing about a family firm: you can rely on support. In the final analysis, as the owner of a company you always have to lie in the bed that you made for yourself – whether for good or for bad. Of course, I have made mistakes in my life. But ultimately, the success we have achieved shows that we took the right path.

**What were your most important decisions?**

First of all, taking over my father's agricultural machinery business. In fact, I wanted to be a forester. Today, I am pleased that I have been able to continue my love of nature through my hobby which is hunting. Then, that I branched out from the agricultural machinery business into conveyor technology. One of the most important decisions in the 1970s was to push through microelectronics – in spite of quite considerable resistance in the company. If we had not done that, the company would probably not exist today. Many decisions were based on intensive discussions with my workforce. We had a good blend of people with vision and people

with outstanding detailed and specialist knowledge in the company. You could say it was a mixture of doers and thinkers. This made it possible for us to conquer a leading position in world markets.

**Grenzebach is a family firm. What does this mean, and why is a non-family chief executive leading the group of companies?**

Of course, family means a close connection between people who are all on the move and influencing one another mutually in their development. As a father, I can only say what I also do. I was always an entrepreneur with total commitment. Yet if I hear an entrepreneur say that he built up the company for his children, then I am rather skeptical. I say quite clearly that I did it primarily for myself; it was simply something that I enjoyed. Of course, not always, because there were also difficult times. But success is fun, and first and foremost, you do what comes naturally. If the next generation also enjoys it, all well and good. However, everyone should be able to decide for themselves which path to take. I am proud that my family is closely connected with the company and is continuing to uphold the values that were created by so many people working together. However, operational management of a group of companies like this, especially with this technical background, represents a particular challenge. My wife and I agree with our daughters that an external chief executive is the best solution in this generation for the further development of the company. It is particularly fortunate that we have been able to obtain Bernd Minning for this post. Our cooperation is extraordinarily good and based on a spirit of great trust. It is him and his highly committed team that we have

## The career of Rudolf Grenzebach

- 1930 — Rudolf was born on July 8 as the second child of Amalie and Josef Grenzebach in Hamlar.
- 1944 — Apprenticeship as mechanic
- 1947 — Apprenticeship as electrician
- 1948–51 — Correspondence course in technical engineering
- 1954 — Examinations as master craftsman in electrical installation and mechanical systems
- 1951 — Severe accident involving a fall from a scaffold  
Following this, self-employed electrical fitter
- 1956 — Joined the agricultural engineering business of his parents, with one employee
- 1959 — First orders in machinery construction
- 1960 — Foundation of Grenzebach Maschinenbau GmbH
- UNTIL 1972 — Development of about 25 in-house patents
- 1977 — Attendance of a university electronics seminar in order to push ahead with building up the firm's own electronics arm
- UNTIL 1998 — Managing partner of Grenzebach Maschinenbau GmbH
- SINCE 1999 — Chairman of the Supervisory Board

**HONORARY POSTS AND ACTIVITIES**

- 19 years as an executive board member of the German Engineering Federation (VDMA) in Bavaria
- 18 years as district councilor in Donau-Ries
- 12 years as local councilor in Asbach-Bäumenheim
- 11 years on the executive board of the Gesellschaft für Altlastenbeseitigung e.V. (founding member 1989)

**AWARDS**

- Honorary citizen of Asbach-Bäumenheim
- Holder of the Bavarian Order of Merit
- Holder of the German Cross of Merit on ribbon
- Medal of Merit for services to the Bavarian economy



to thank for the growth that has taken place over the past few years, because he is a visionary entrepreneur in the best sense, and above all he has a sure touch with people and markets.

**In July, you will be celebrating your 80th birthday. What are you hoping for on this special day?**

First and foremost, I am grateful to God that I have been allowed to celebrate this birthday hale and hearty. You cannot take that for granted. Wishes? That our group of companies will also be able to continue developing positively even in these difficult times. That the people who work for us feel happy

and well looked after. That we all treasure what we have, and are also prepared to stand up for it heart and soul.

For myself personally, I hope that my wife and I will have the opportunity to continue following the progress of the group for a few more years, and that we can enjoy this time. That I still have time for my children and grandchildren, and also have an opportunity to enjoy traveling. As you can see, I still have quite a few wishes in spite of my age...

The strengths of German small and medium-sized enterprises

## “Family-owned firms are the backbone of our economy”

Interview with Prof. Hans-Werner Sinn, ifo Institute for Economic Research, Munich

**Professor Sinn, you are very familiar with small and medium-sized enterprises (SMEs). What would you say are the strengths of Germany’s SMEs in these difficult economic times?**

**Prof. Sinn:** Once again, the crisis has shown us that SMEs are the backbone of our economy. Many corporations were caught up in questionable deals. Small and medium-sized businesses, and above all the family firms, are the ones that take a responsible approach to their economic activity and are the watchword of sustainability. The problem they often face is getting access to capital. They cannot simply boost their equity capital by issuing shares, and since the Basle regulations came into effect, they have often found it difficult to obtain affordable external capital. Nevertheless: pursuing a responsible company policy does pay off in the long run. This sustainability combined with a capacity for innovation is without doubt the greatest strength of Germany’s SMEs. Indeed, your company is an outstanding example of this.

**What are the criteria for future success, particularly for companies like the Grenzsbach Group with its**

**special plants and machinery for niche markets?**

**Prof. Sinn:** Germany is a country of champions. We have around 500 companies such as Grenzsbach that are world market leaders in their sectors, and have conquered their niche markets. We have another 500 companies that are in the top three worldwide in their respective fields. This is an incredible strength, and one which our neighboring countries are very jealous of. Success today and in the future is all about good, indeed outstanding, products, innovative capacity and continuity. That is the best basis for the international success of German companies. They generate the revenues that Germany needs to pay for its imports and to maintain the standard of living. However, I do not intend to leave one factor unmentioned, because I always see both sides of the coin from an economic perspective: on the one hand, Germany’s high export surpluses are the result of major innovative strength. On the other hand, they come from the outflow of capital that was triggered in recent years by the enormous volume of sales of dubious securities by the USA and southern European countries. This capital drain imposed



such a brake on the domestic economy in terms of building activity and capital investments that we became less and less expensive relative to our neighbors in Europe.

**As you have confirmed, small and medium-sized enterprises play a key role in the German economy. Do you think they should play a more openly political role?**

**Prof. Sinn:** That would certainly be desirable. SMEs definitely should get involved in politics. The firms do have lobby groups, but these usually only concentrate on economic matters. At the moment, many things are

happening in politics that are undermining the stability and well-being of society. The euro is under threat, and I believe that the EU decision-making process leaves Germany short-changed. Last but not least, I would be very happy if a strong group of small and medium-sized firms would express itself forcefully on political matters, thereby helping to shape one or two other political decisions. After all, the SMEs have to operate within the politically established parameters.

**Prof. Sinn, you know our company – indeed you referred to us in your book “Ist Deutschland noch zu retten?” (Can Germany Still be Saved?) as a positive example, and you also know our founder, Rudolf Grenzsbach. What would you wish him and the current CEO for the next few years?**

**Prof. Sinn:** First of all, I would like to congratulate Mr. Grenzsbach on his magnificent life’s work, which is unparalleled to a large extent. I wish him, his successor and the family every future success, and I hope that it will be possible for the company to continue to play a leading role in global markets in the future, thanks to its innovative strength and strategic vision. Everyone who works in this company can be proud of it – companies such as the Grenzsbach Group are reliable and function well. The fact that such companies exist represents a beacon of hope in this day and age when politicians are spending money like water and placing Germany’s future in the balance. And they provide an example of how stable, well-managed companies continue to prosper even in times of crisis. I hope this continues to hold true for your company. All the best to you!

**Professor Sinn, thank you very much for the interview, and for your good wishes!**

The economist, Prof. Dr.Dr.h.c. Hans-Werner Sinn, has been President of the ifo Institute for Economic Research since 1999 and Director of the Center for Economic Studies (CES) at the Ludwig Maximilian University (LMU) in Munich since 1991. He has held a professorship in political economy

and financial science at the LMU ever since 1984. His posts previous to this have included two years as professor at the University of Western Ontario in Canada and as guest professor at the London School of Economics as well as at the Universities of Bergen, Stanford, Princeton and Jerusalem. He has written

several text books on economic policy issues, including the book “Can Germany Still be Saved?” and, most recently, “Casino Capitalism” (2009). He collaborated with his wife Gerlinde in 2009 to write an interim report on the economic unification of Germany, entitled “The Muffled Jumpstart”.

# The core values of the Grenzebach Group

**Grenzebach is an internationally active, expanding group of companies with its own production facilities in three currency blocks.**

**Our core values drive and shape our activities:**

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**We stand for the stability and values of a family-owned company.**

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**We regard our employees as the greatest capital our group of companies possesses.**

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**We put our customers in the center of our activities.**

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**Our innovative technologies make us a global leader.**

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**We boost our customers' success through offering the highest quality products.**

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**We create high-quality apprenticeship posts for the coming generations.**

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production locations

1500

worldwide workforce

**The Grenzebach Group**  
From a craftsman's  
workshop to an  
international group  
of companies



locations and subsidiaries

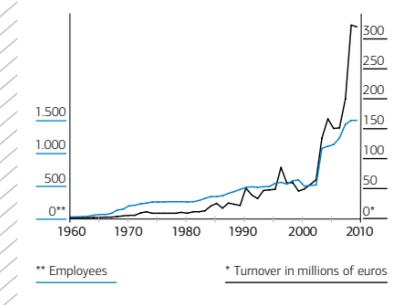
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# Grenzebach worldwide:

**Locations**  
 17 locations  
 Development locations in Bad Hersfeld, Hamlar, Karlsruhe, Munich and Potsdam.  
 Production locations in Bad Hersfeld, Hamlar, Jiashan, Newnan and Shanghai.  
 Further sales and service branches in India, Indonesia, Italy, Russia, Taiwan and the USA.

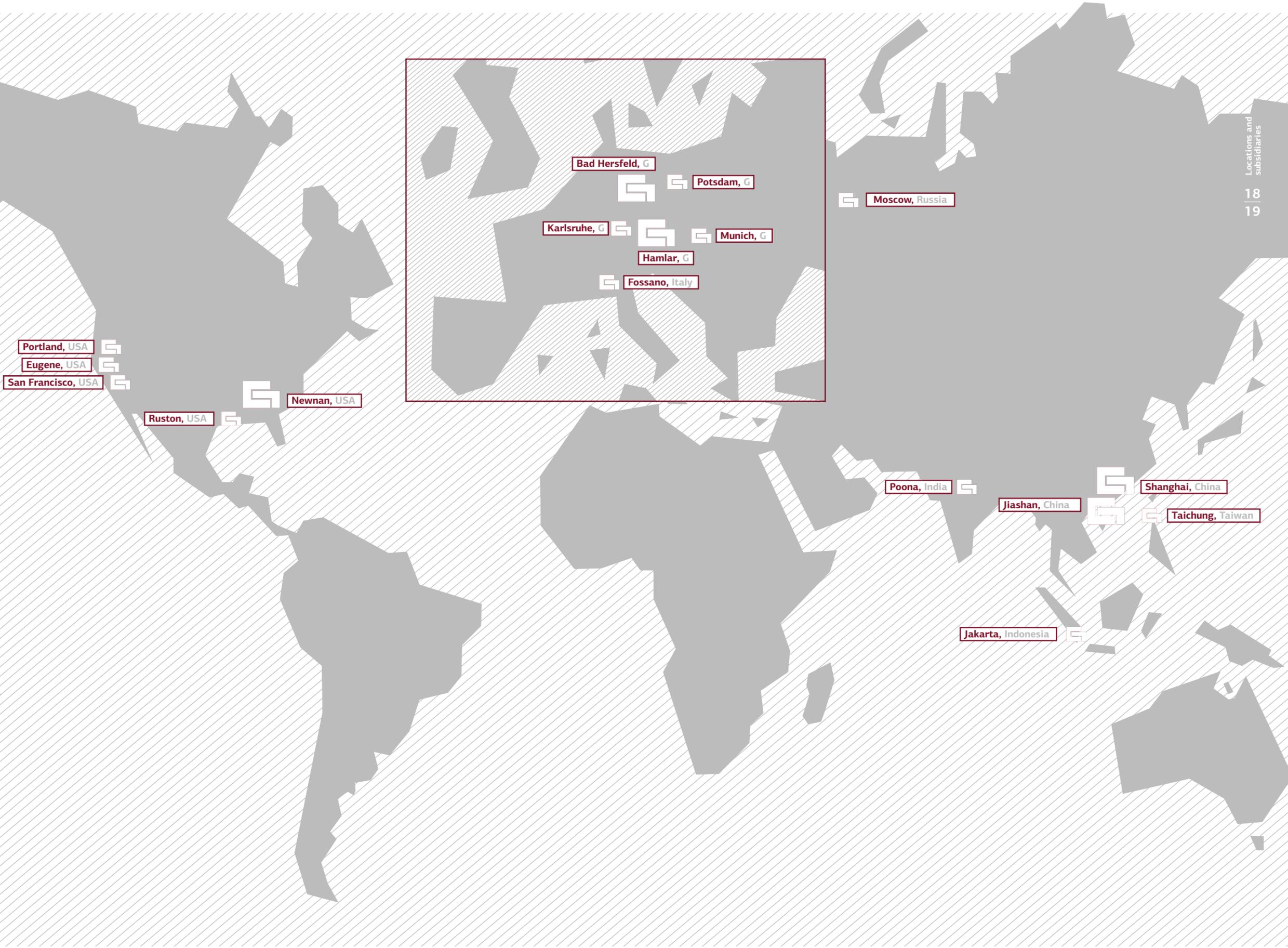
**Employees**  
 worldwide: 1,500  
 in Germany: 1,103  
 China: 279, USA: 99, other countries: 19.

**Ownership structure**  
 The company is owned by the Grenzebach family.



**Locations**

-  Production locations
-  Other locations





## Supervisory Board members

**Cooperation with the Board of Management in a spirit of partnership:** the Supervisory Board with Dieter Kirchmair, Rudolf Grenzebach (Chairman) and Dr. Hans Sporer.



## The Board of Management

**Working out solutions for the future today: the highly experienced members on the Board of Management of the Grenzebach Group set the standards.** Together with their employees, they provide the company with its identity and overcome fresh challenges time and time again. All pull in the same direction, provide impulses, turn ideas and visions into reality. Throughout the world – at all Grenzebach locations – in existing and new markets.

**Dr. Tao Wang**, Chairman of the Board of Grenzebach Machinery (Shanghai); **Egbert Wenninger**, Vice President Sales, Glass Technology; **Dr. Wolfgang Ullrich**, CEO Grenzebach Algoscan; **Peter Marcinkowski**, Vice President Human Resources; **Jürgen Brunner**, Vice President Information Technology; **Franz Gleißner**, COO; **Stefan Grenzebach**, CFO; **Bernd Minning**, CEO; **Bruno Geiger**, CSO; **Bernd Rudolph**, Vice President Business Development, Building Materials Technology; **Frank Ullsperger**, COO Grenzebach BSH;

**Wolfgang Ritzka**, Vice President Service; **Jürgen Most**, Vice President Commercial Contracts and Managing Director Grenzebach Mashtech; **Wolfgang Nowak**, Vice President Purchasing; **Dr. Christoph Habighorst**, Vice President Sales, Building Materials Technology; **Jieming Shi**, General Manager Grenzebach Machinery (Shanghai); **Xaver Hake**, President Grenzebach Corporation; **Roman Kaiser**, CEO Grenzebach Automation

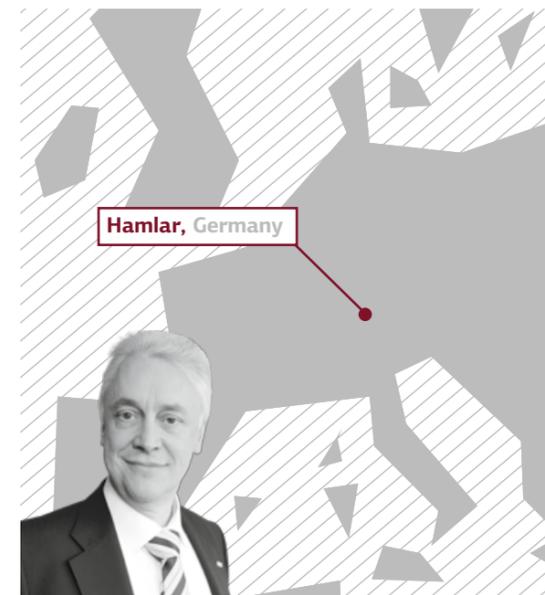


## Hamlar (GER) 1960

### Grenzebach Maschinenbau GmbH

The cradle of the Grenzebach Group.

Hamlar is the home of the company founder and the central contact point for all comers. The company started off small, but gradually the production shops and office buildings grew. Today, nearly 590 employees work in Hamlar, including about 260 in production. The latest investments have been in the production shop with an area of 3,000 square meters (2007), the training center for up to 60 apprentices (2009) and the new office building with canteen and terrace covering a total of 2,440 square meters (2010).



BERND MINNING CEO



## Bad Hersfeld (GER) 2002

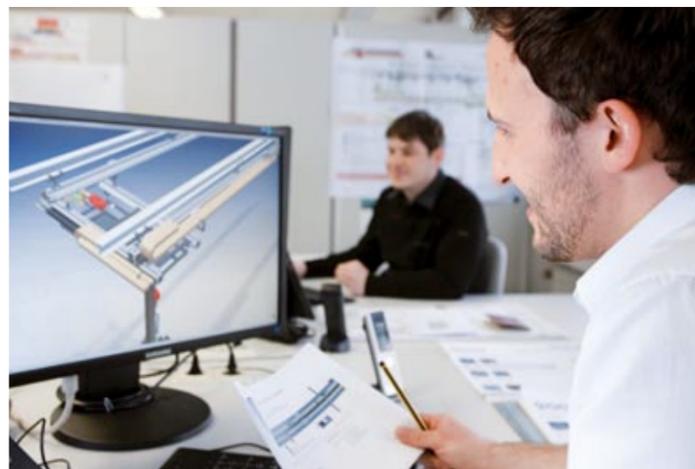
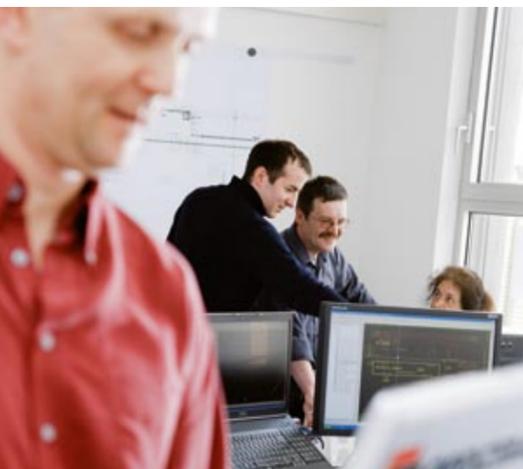
### Grenzsbach BSH GmbH

**The building materials experts.**

When it comes to plants for the building materials industry, Bad Hersfeld is Number One. From gypsum and wood to mineral wool – Grenzsbach customers around the world put their trust in know-how from this location. The former Babcock BSH has belonged to the Grenzsbach Group since 2002. Five years later, the company relocated from the town center to an out-of-town green-field site. The new office building with a view out over the valley was inaugurated in 2007. Since 2009, the production facilities have been housed in the state-of-the-art manufacturing shop with an area of 9,000 square meters. Over 400 employees currently work in Bad Hersfeld.



BERND MINNING CEO



## Karlsruhe (GER) 2001

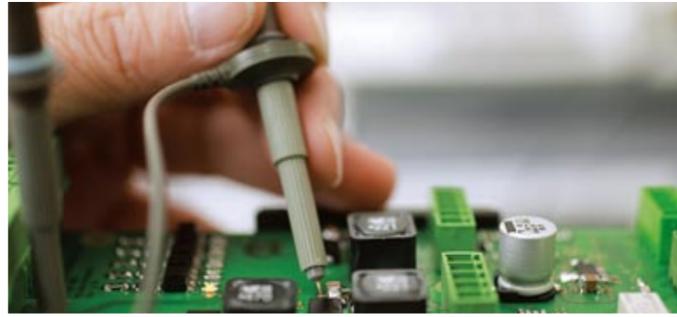
### Grenzbach Automation GmbH

#### The versatile experts.

Grenzbach amalgamated the companies Fördertechnik, Onero and AAT, purchased between 2001 and 2006, to form Grenzbach Automation in 2006. Conveyor technology for new markets, intralogistics, baggage handling for airports, material flow plants for the foodstuffs industry - there is a constant state of flux at the Karlsruhe location. Here, also, the Grenzbach team works on new ideas for the industries of the future. Around 60 employees network with the Group to jointly create future markets.



ROMAN KAISER CEO



## Potsdam (GER) 2009

LJU Automatisierungstechnik GmbH

The automotive experts.

Automated guided vehicles moved as if by magic, non-contact energy transfer: at the Grenzebach location in Potsdam, with an approximately 50-strong workforce, intelligent processes are often carried out invisibly. The primary customer for the innovative control solutions and automation technology is the automotive industry.



Potsdam, Germany

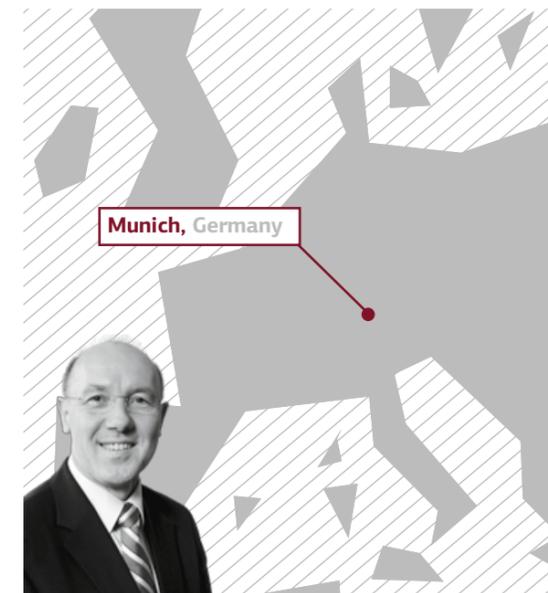
SVEN HAFENBERG COO  
ROMAN KAISER CFO  
STEFFEN SCHWABE CFO

## Munich (GER) 2009

Grenzebach Algoscan GmbH

The eyes of the Group.

With ultramodern camera and inspection systems, the Munich location is visionary in every sense of the word. This is where about 20 employees develop the eyes for the Grenzebach plants; they keep a close eye on everything and ensure that all is under control. The alert inspection devices are used primarily in the glass and solar industries, but also in other branches.



Munich, Germany

DR. WOLFGANG ULLRICH CEO



## Newnan (USA) 1988 Grenzebach Corporation

### Our American Dream.

Grenzebach was present early on with a Group company in the “Land of opportunity”. From the outset, this company has been involved in sales, design and production. Since the start of the new millennium, the company has enjoyed solid growth and continues to expand. The most recently built facilities were opened in 2006. Around 100 employees work there and are the first port of call for our American customers in particular. That the company’s commitment is appreciated by the State of Georgia was clearly shown by the official statement of Governor Sonny Perdue at the 20th Anniversary celebrations in 2008. In his speech, he said: “You have made the American Dream come true”.



**JOHN FLUKER** Vice President Sales  
**XAVER HAKE** President  
**CLAUDIA WURRL** Vice President Administration



Shanghai, China

## Shanghai (China) 1998 Grenzbach Machinery (Shanghai) Ltd.

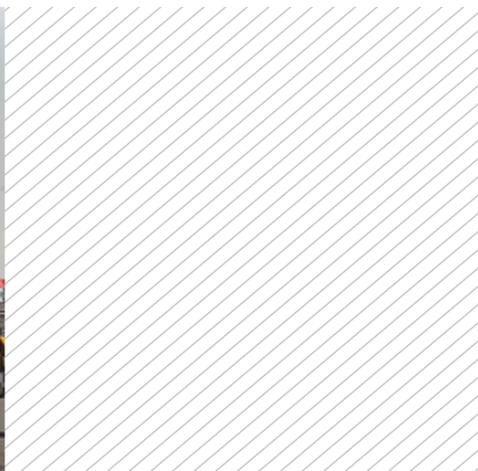
**Chinese wisdom.**

“Wherever you go, go with all your heart.” (Confucius).

The founding of a subsidiary in China was born of the conviction that this is the best place from which to serve the Asian market. Our success has proved us right: Having started out purely as a sales office, it became a fully-fledged production location in 2001, soon employing a workforce of 170 in three production shops with a combined area of 7,800 square meters. Sales in China contribute significantly to the overall success of the Group. In 2006, Grenzbach relocated to its first company-owned production plant with an area of 20,000 square meters (Plant 1).

Today, the Shanghai location also offers a kind of general economic development: the Grenzbach Business Park provides a foothold for German companies newly arrived in the Chinese market or seeking to benefit from synergies with Grenzbach.

DR. TAO WANG Chairman of the Board



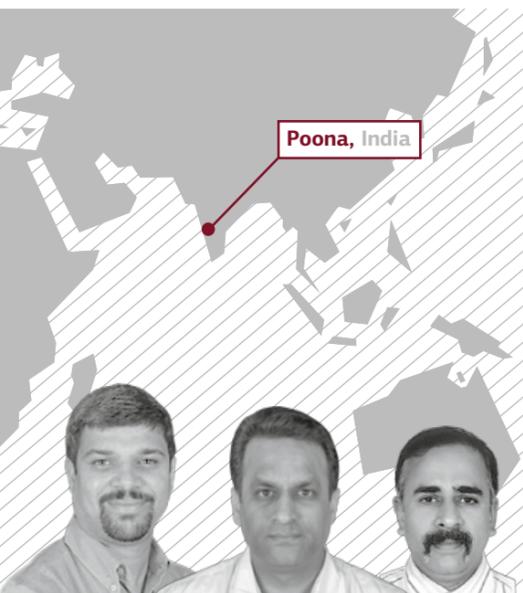
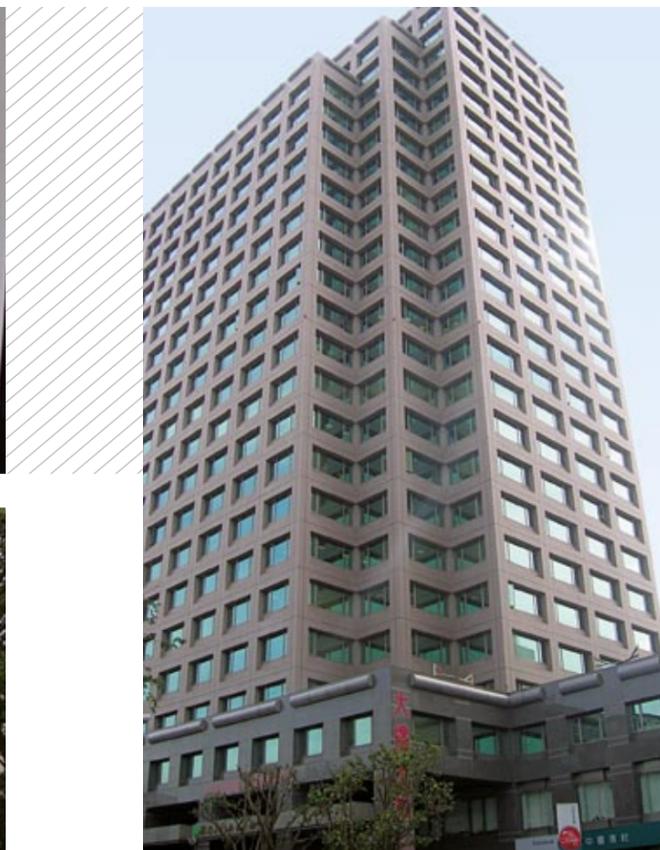
Jiashan, China

## Jiashan (China) 2008 Grenzebach Machinery (Jiashan) Ltd.

The new Grenzebach center in the Middle Kingdom. Just outside Shanghai, about a 45-minute drive from Plant 1, a new manufacturing facility with a production area of 21,000 square meters was opened in 2008 (Plant 2). From here, Grenzebach components are supplied to the Chinese market quickly, efficiently and with the customary high Grenzebach quality. Customer support is also coordinated and handled on site. The two production locations in China currently have a combined workforce of nearly 300.

JIEMING SHI General Manager



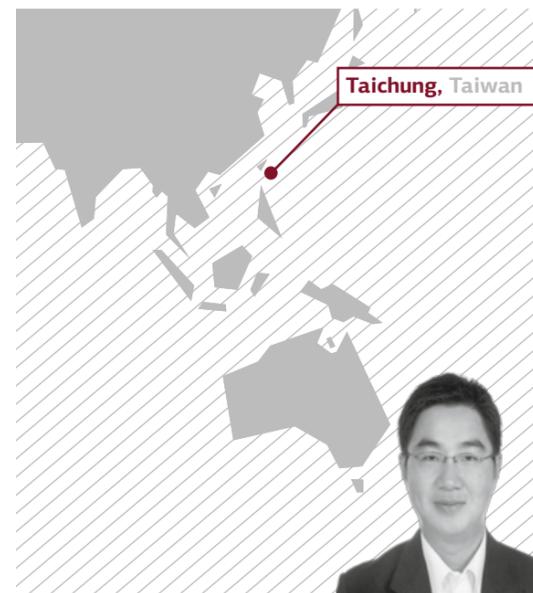


## Poona (India) 2006

### Grenzbach Machinery (India) Pvt. Ltd.

**The sun wheel in motion.**  
 The sun wheel (swastika) is considered to be an auspicious symbol in India. It also symbolizes the cause of all life: movement. Things are also on the move for Grenzbach in India. Reason enough to open a Sales and Service office on the Indian subcontinent. The address in Poona, a good 90 kilometers from Mumbai, is the contact address for existing and new customers in India and for all those investing in India from around the world. Customers appreciate the fact that we now have a local presence with employees who speak the language and who are familiar with and understand the Indian mentality.

**PRASANNA HEGDE** Technical Manager  
**SUNIL KHALDILKAR** Manager Administration  
**AMOD PATWARDHAN** Sales Manager

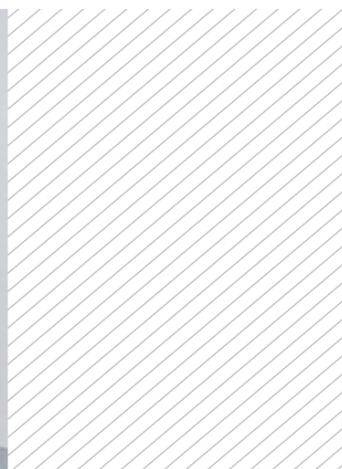


## Taichung (Taiwan) 2008

### Grenzbach Machinery Taiwan Ltd.

**Clean machines.**  
 Customer proximity was also the motivation for this new location in Asia. Grenzbach aims to respond directly and efficiently to the increasing enquiries particularly in the clean room market for manufacturing displays. The production of liquid crystal displays (LCD technology) necessitates systems that are not just clean but absolutely clean in operation. Because any grain of dust on a display would create a problem.

**ALBERT CHEN** CEO



## Moscow (Russia) 2008

OOO Grenzebach Mashtec Moskau

**New-found proximity to old friends.**

“Drushba”, friendship, evolved with many a Russian business partner in the 1970s. Since 2008 Grenzebach has now been operating its own Sales and Service office in Moscow to meet the growing demand of our local customers there. The Russian market offers vast potential. Grenzebach is anticipating significant growth there in all sectors in the coming years.

JÜRGEN MOST Managing Director

## Fossano (Italy) 2008

Grenzebach Machinery Italy s.r.l.

**The glass boot.**

Grenzebach’s activities in the Italian market began a good 30 years ago with plants for particle boards. The Group has also supplied manufacturing systems for the glass, solar and building materials industries to our close European neighbor for a very long time. In terms of local service, Fossano represents another nodal point in our global network. With Grenzebach’s Italian branch and the greater customer proximity that it provides, the market has become even more transparent – a glass boot, so to speak.



SEBASTIANO BORRA General Manager

time zones



locations and subsidiaries

**People**  
make companies.  
People are the key  
to success



**“In the end, all business operations can be reduced to three words: People, Product and Profit. People come first. Unless you’ve got a good team, you can’t do much with the other two.”**  
Lee Lacocca



A day at Grenzebach

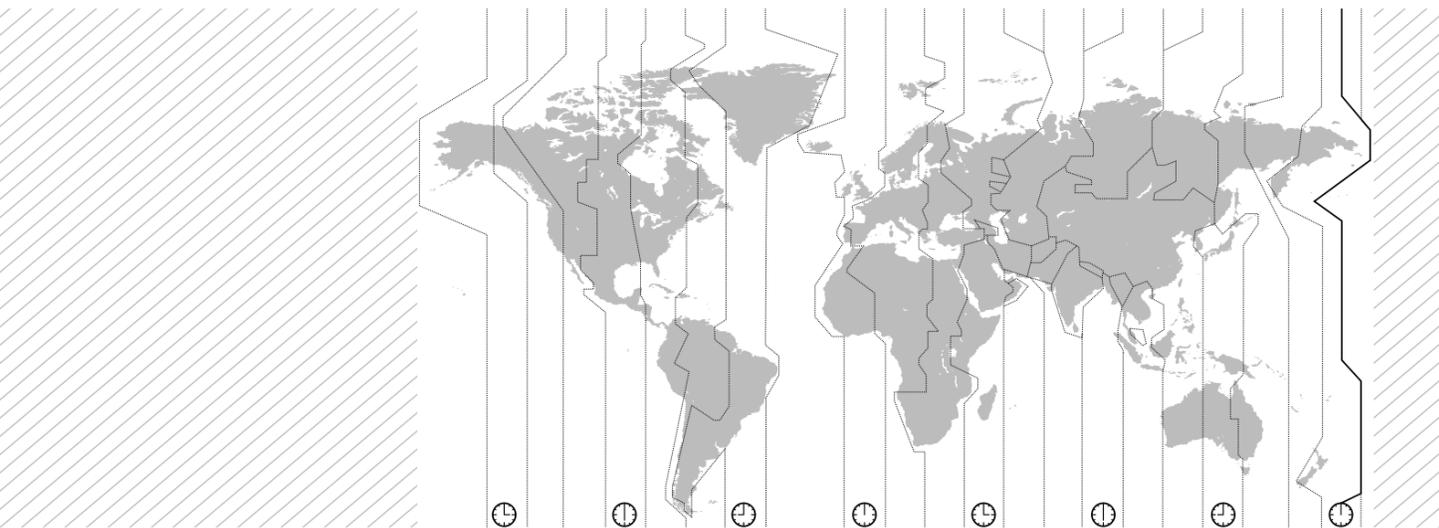
**People are behind all developments, processes and production.** At Grenzebach, we employ people from many different countries with different ways of thinking. This variety is a great asset, but also provides us with a challenge.

**Our differences are viewed as an opportunity within the group. Employees from all locations exchange technical expertise, work together, develop understanding for one another and learn from one another. With this basic understanding and our ability to locate a key contact quickly in all our locations and hierarchies throughout the world, we are able to meet one of the most important demands on the Grenzebach Group: delivering optimum solutions to customers, round the clock, globally and, above all, efficiently and reliably. That is what is important every day in the world of Grenzebach, as illustrated by this example:**

**7:13 A.M., CALIFORNIA, USA:** The head purchaser of a building materials company is starting his work for the day. Straightaway, he looks up the phone number of his contact at Grenzebach in Newnan/Georgia who developed an extensive

plasterboard plant for and with him a few months ago. This plant is currently in production at Grenzebach. Yesterday, this customer realized he needs help with an additional requirement for the line. He knows that Grenzebach is a business partner who speaks his language and is in a convenient time zone, therefore he uses this quick line of communication.

**10:14 A.M., NEWNAN, GEORGIA, USA:** The phone rings on the desk of sales director John Fluker. His customer from California is on the line: “John, I spoke to our sales director yesterday. We have the chance of winning a new client – but only if the plant we ordered from you is extended. We agreed that it should produce and process four different plasterboard formats. Now it is essential for us to have a new fifth size. Is that possible?” It is no problem for John Fluker. He knows that this is mainly a matter of programming, but that it could involve many other components throughout the





entire plant. However, Grenzebach systems are designed so ingeniously that they offer provision for flexibility. But the customer is continuing to talk: “Well, John, our new customer not only needs a different format, he also wants it in double quick time. That means we would like to have your plant running four weeks before the agreed start-up date.”

Now John has to swallow hard, and rack his brain. He knows: the plant for California is worth around 30 million US dollars, and includes many individual components. Some of them are already being produced in Germany, including the sophisticated control system. Other parts are being manufactured at the Jiashan factory in China. Coordinating all the sites means not only technical modification but also cutting the process times and recalculating the costs.

“Please give me a bit of time to clarify this new situation,” John asks his caller. “I am sure we’ll find a solution.” “Yes, John, I know. Thank you – speak to you later,” the customer smiles and hangs up.

**4:25 P.M., HAMLAR, GERMANY:** “...and once we’ve managed that, I’ll start teaching pigs how to fly,” jokes Franz Gleißner, the director of Engineering and Production in the Grenzebach Group, when he hears from Newnan what California wants. He immediately calls his team together. “Let’s think about how we can deal with this.”

His management colleague, Dr. Tao Wang from the plant in China, is currently in Hamlar to discuss technical details for a float glass line with his German colleagues. He knows the plasterboard plant project in question. After a brief conversation with Engineering in Bad Hersfeld, Frank Ullsperger and his team, they agree to hold





a video conference so that Newnan, Hamlar and the plasterboard specialists from Bad Hersfeld can discuss the current challenge. Just as it is time for their colleagues in China to think about going to bed, the rest of the Grenzebach world gets going at high speed.

**4:47 P.M., HAMLAR:**

The contacts have gathered together at short notice from all the departments involved. Jens Aldag, deputy production manager, goes systematically through the contract – what will be produced where and when. The dryer is being built in the Grenzebach workshops in China in order to benefit from the lower wage and procurement costs for such a high-quality product. The steel needed and the sheet metal have already been purchased locally. This means the combined calculation enabled an attractive price to be quoted to the customer in California.

In times of severe price pressure, it is a clear competitive advantage for the Grenzebach Group to be present in the three currency blocks of the US dollar, the euro and the Chinese renminbi.

The roller conveyors are currently in production at Hamlar and Bad Hersfeld. Some of the plant's key components are being built in Germany, for example the saw, the modules for stacking the plasterboards and the bundler with its complex trimming and taping device. The highly sophisticated control system encompasses up to 30 different drives, amongst other things. This is where Bad Hersfeld Engineering comes in, because the design of the plant has to be adapted. Adding another format means the plant components have to be set to different positions, the cycle rate might have to be changed, and many more aspects need to be taken

into account. Discussions continue, ideas are considered. Then the participants break up into small teams in order to clarify the details – and also liaise by phone with the USA.

**11:05 A.M., NEWNAN, USA/5:05 P.M., BAD HERSFELD AND HAMLAR, GERMANY:**

John Fluker and his project manager Joachim Hillius are discussing the details over the phone with Manfred Schmidt and Karl-Friedrich Lang from the Plant Engineering department in Bad Hersfeld. Gerhard Schöne-mann is responsible for worldwide production, and is poring over the timetable. Together with his colleagues Dr. Tao Wang from China and Christoph Vollmar from Bad Hersfeld, he is looking to see where additional time can be saved. Gerd Brod and his team are refining the



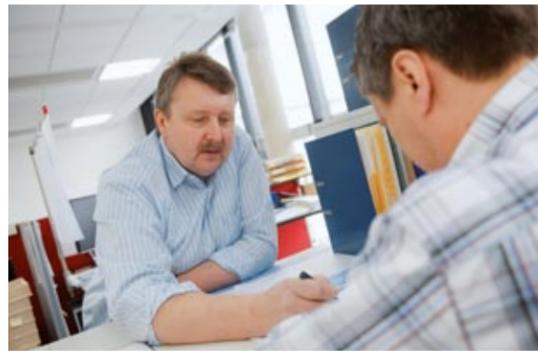


control concept. In Hamlar, Roland Jenning, the head of electrical systems for the Group, is checking the possibility of startup support in order to achieve the earlier deadline. It is important to be able to give the customer the green light as soon as possible.

**6:08 P.M., HAMLAR:** Franz Gleißner calls John Fluker in Newnan: "So, John, we've made quite a bit of progress here. The additional format can be achieved quite easily, although the time required both for programming and for a number of production processes is quite considerable, especially if we need to complete the order so quickly. This means we will have to use additional personnel in some areas, which in turn means more hours. We cannot achieve it without avoiding an additional charge, but it won't be anything extreme. You can tell California that we can do it. We'll clarify the details as soon as possible."

**3:15 P.M., NEWNAN:** John Fluker speaks to the Grenzebach customer in California. There it is 6:15 p.m.





and his customer is shortly about to leave work. He is relieved: "I knew you could do it, John. We can rely on you – that's superb! It would have been really bad for us if we hadn't been able to accept this new order. I'll stand you a drink the next time we meet! Say thank you to the whole team at Grenzebach, and have a nice day!"

**7:34 A.M. NEXT MORNING, HAMLAR:** While the customer in California is tucked up in bed, Gerhard Schönemann is on the phone to his Chinese colleague Jieming Shi, General Manager of Grenzebach in China, discussing the situation.

**10:07 A.M., NEWNAN, USA:** Joachim Hillius is talking to Grenzebach's CFO Stefan Grenzebach about the consequences of the new cost estimate for the order. What is the US dollar rate today? Do we need to hedge the rate? Will the customer be willing to pay sooner as well? Additional details are discussed in all departments throughout the course of the day. The new timing is calculated in production, purchasing is checking how much earlier certain materials can be procured, logistics chief Ralf Jäger is scheduling transport arrangements from China and Germany to California, the entire installation plan will have to be rescheduled and the crew start work on the west coast of the United States four weeks earlier. All this quite apart from other logistical matters. Everything goes hand in hand, and even if it takes a great deal of effort, what counts is a good result. And that means: "We can do it. Together, we can manage it." Or, as the building materials specialists at Grenzebach say: "No go is no option!"

**It is people after all who make a company.**





## The “Grenzebach social structure” working together, being there for one another, creating security and values.

**The Grenzebach family firm has always regarded it as an obligation to create value for its employees as well, providing for the well-being of its people, as is manifested in many different ways.**

For example, Grenzebach has had an extensive company pension scheme since 1980 in order to help employees after they finish their active working lives. Free annual health checks and preventative examinations are available to employees if they choose. Cooperation with the workforce and their elected representatives, the Works Councils, function on the basis of trust and straightforward contacts; topics are discussed in a relaxed and solution-oriented way, decisions are taken without significant delays. Of course, different opinions arise from time to time, even in the Grenzebach Group. However, frank communication in a good company

environment makes it possible to find a common denominator in all cases – after all, everyone shares common interests.

Getting-together and shared hobbies are a real benefit – whether in the family, in clubs or in companies. Working together, laughing together: we also have some initiatives that go beyond working hours. Employees meet up for bowling, volleyball matches or card games after work. Grenzebach has several soccer teams which are warmly supported by many, and which always perform creditably in competitions. Active cycling groups also occasionally set out on expeditions throughout Germany in order to take part in company festivities at Hammlar or Bad Hersfeld. We have a policy of celebrating special occasions – such as company anniversaries

and regular parties at Christmas time. Musical accompaniment is provided by the “Grenzebach-Buam”, our own band. They have taken Bavarian sounds as far as China and the USA, and always go down a storm wherever they are. At the same time, their younger “offshoots”, our company’s own rock band, offers full-throttle rock music instead of Alpine strains, and has quickly built up a fan base.



## Education is the key to the future.

**Any company that wants to shape the future needs to do all it can to promote the education and training of its people. This is what we do at Grenzebach with great commitment. We are interested in social education as well as communicating knowledge. Ever since the company was founded, those in positions of responsibility have been aware that good professional education is an important strategic task. This is not just a matter of safeguarding the future of our company with personnel qualified through our in-house training. Rather, we regard ourselves as responsible for the people in our company and in our region, as well as for the generations to come.**

We want to give as many young people as possible the chance to obtain the qualifications they need for their

**“Geniuses do not grow on trees. They need the opportunity for training and development.”**  
August Bebel

career. Therefore, we have always provided training for a higher proportion of our employees than is usual: the quota at our training locations is now between 10 and 13 percent. Attractive and highly qualified apprenticeships mean that we offer young people an interesting opportunity in their home region. As at September 1, 2010, more than 100 young people are undergoing apprenticeship training at Grenzebach.

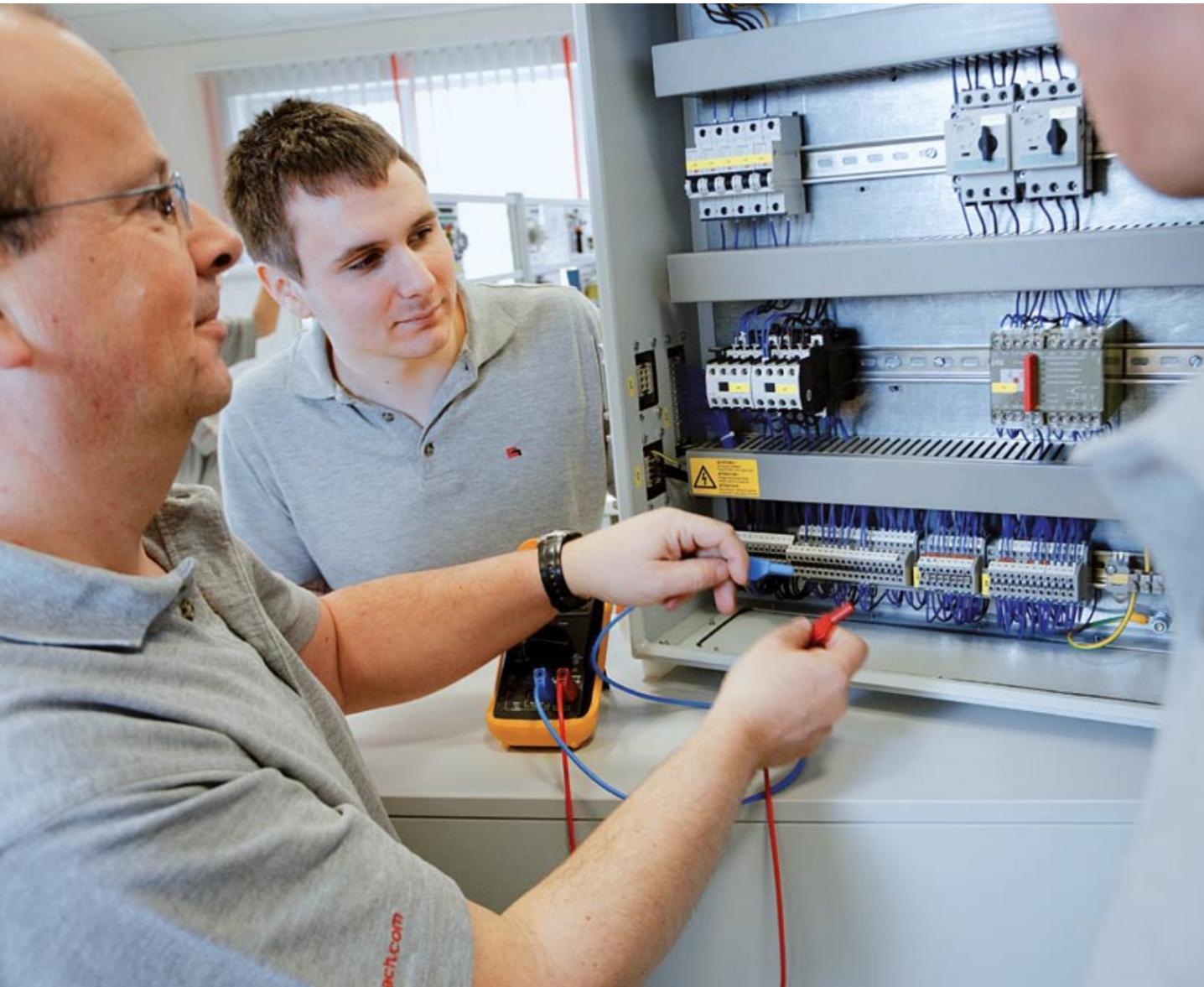
At our German training locations, young people can select from 20 different career paths within the CCI training scheme, and learn these skills at Grenzebach – practical training in a conducive atmosphere. Furthermore, since 2001, school-leavers have been able to study mechanical engineering or electrical engineering in the Dual System. Our partners in this are Ulm University of Applied Sciences (courses following the Ulm Model) and, since 2006, the Professional Academies in Eisenach and Gera. The Dual System course offers an ideal link between theory and practice. Even before graduating, the students learn how all areas mesh closely. They work on projects with colleagues from other locations, thereby learning about the culture and mode of working in a global group of companies related to their own activities.

Our new Grenzebach Training Center which opened in Hamlar in June 2009 provides the optimum environment and the best possible conditions for learning. Electronics and mechanical topics can be taught in close proximity and collaboration. Cooperation between these areas is becoming increasingly important, and this is experienced in everyday work here. We are also of the opinion that a facility for increased training can only be an advantage, which is why we also open the Training Center to other companies in our region. Firms from the neighborhood are already using the center, and we are receiving enquiries from other companies in the area who wish to take advantage of these facilities. What is more, the Training Center is a genuine model for the future education of the next generation. Surely something that concerns us all.



### Life-long learning

Learning runs like a special thread through the warp and weft of everyone's life, as is the case in our company. Anyone who works at Grenzebach is constantly faced with new challenges, whether in terms of technology or optimizing procedures. Training on the job as well as additional qualification and development therefore go hand-in-hand with us. Only by being open to new ideas, being prepared to take a critical look at themselves and ready to learn more can people develop further and contribute to the success of the Group. To this end, Grenzebach offers numerous possibilities for further education. There are special training programs and workshops in the company or at external institutes covering languages, inter-cultural skills, management



and communication behavior as well as ongoing technical training courses toward qualification as a master craftsman. The focus of all educational measures is always directed towards the employee's possibilities for further development within the company and their ability to make a corresponding contribution. Such programs are offered irrespective of where the employee works. In China, for example, employees have been able to advance their qualifications locally at our own Rudolf Grenzebach Professional Training Center which was founded in 2009.

### **Closely meshing education and industry**

Choosing the right profession sets the course for a personal future, and is more important for young people today than ever before. At the same time, technology

and new media are essential factors of any profession. School education cannot prepare students sufficiently for the reality of the workplace. Therefore, we organize numerous school projects to offer students – as well as teachers and parents – insights into various career paths, and we show them how technology and new media are factors which determine and facilitate the everyday working environment in a globally active company.

Since 1999 we have enjoyed a partnership with the Heilig Kreuz Junior High School in Donauwörth, and are proud to say that this was singled out as a model project by the Stiftungspakt Bayern (Bavarian Educational Foundation). In this project, Grenzebach initially provides the students with PCs as well as trained IT experts, allowing the subject of PCs and the Internet



to be intensively included in education. Since then, we have jointly carried out many other projects in close partnership, thereby benefitting the students and the school.

Grenzebach set up a robot laboratory at the Donauwörth High School in 2001 for the optional subject of information technology/robot construction. This has since been expanded further and adapted to new technological developments. Highly motivated teachers provide exciting education to students as young as the 5th grade, covering the design and construction of robots, which are then brought to life using a robot programming language.

None of our school and youth projects would be possible without the extraordinary commitment of teachers and support staff.

Our group of companies regularly opens its doors to students from all kinds of schools, both academic and practical, as well as to university students. During these practical days, visitors can take a look at job profiles and the everyday working practices at Grenzebach, as well as talking with employees about their work.

Another building block in the curriculum enrichment program within our region is our involvement in endowing a professorship at Nördlingen. Grenzebach and other private contributors have succeeded in bringing a higher-education institution close to our headquarters in Hamlar and strengthening the regional structure. Everything follows the motto: future professional success is built on early practice.

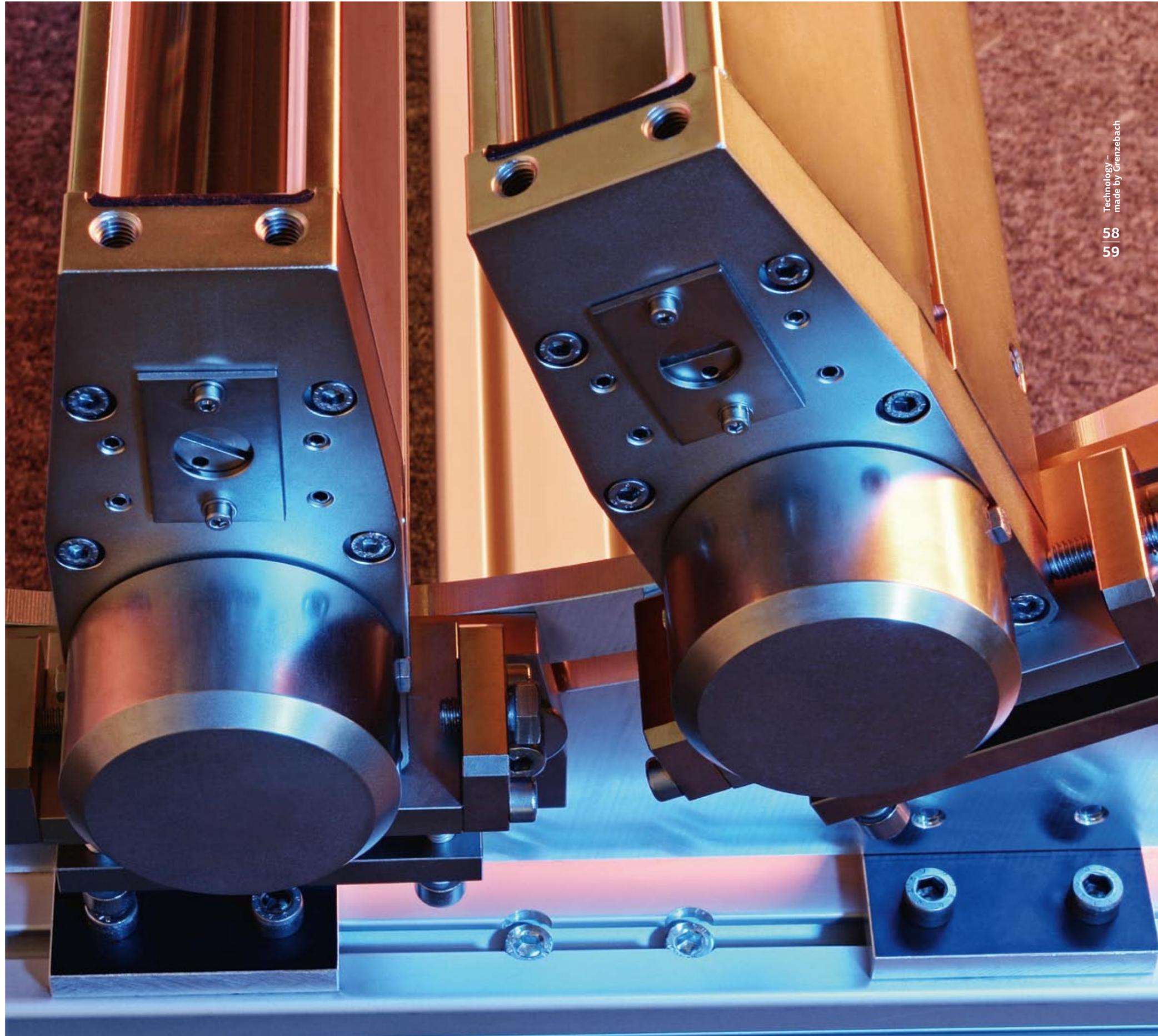


engineers

590

different product types are produced  
using our plants

**Technology**  
at Grenzebach means  
developing new  
solutions, continuously;  
re-using what has  
proven effective,  
always taking a  
critical look at the  
current situation.



“Technology is always progressive,  
that is its nature, it has to supersede  
what came before.”  
Theodor Heuss

## Glass

The word derives  
from the Germanic  
“glasa”, something that  
shines or shimmers.  
Glass is one of the  
oldest materials used  
by humanity.





**Grenzebach has been planning and producing plants for the glass industry since the early 1970s. At that time, Sir Alastair Pilkington revolutionized the production of flat glass with the invention of the float process. Until that point, flat glass had been manufactured using the casting and rolling process – resulting in a product with poor optical qualities compared to current standards.**

In the float glass process, the molten glass is drawn over liquid tin, meaning that it is formed while floating on a bed of tin. Typically, 600 metric tons of glass are manufactured every day on this basis, which is enough to cover 15 soccer fields with glass 2 mm thick.

From the moment when the continuous ribbon of glass comes out of the *lehr*, Grenzebach equipment takes charge of the material. First of all, the quality of the arriving glass is ascertained. Laser measuring systems and cameras are used for detecting the thickness, the stresses in the glass and all the typical glass defects. Inclusions and air bubbles are reliably detected down to a defect size of < 0.1 mm and even the optical refractive power is calculated.

This information is used by the host and optimization computer to ensure the required quality is achieved in the individual end products. For example, practically no defects are allowed in automotive glass, whereas glass for greenhouses is allowed to have relatively large inclusions. Glass that cannot be used is automatically reduced to the smallest possible sheet dimensions. This means the amount of useful glass obtained from each batch is drastically increased. The host computer provides the "brains" of the plant, and has online connections to all components. It knows the position of all glass sheets on the line at all times, as well as the status of the stacking facilities. The amount of glass transported to a stacker never exceeds the available capacity.

Once the host and optimization computer has calculated the optimum cutting pattern, the glass ribbon is fully automatically cut into the corresponding sizes. Substandard sheets are segregated and the individual glass sheets are conveyed exactly to the planned destination point. The range of stacking facilities covers all imaginable sizes and thicknesses. Grenzebach always has the right stacking solution available, from a small sheet of 400 x 500 millimeters weighing 2 kilograms through to super-large sizes of 9,000 x 3,600 millimeters weighing almost 1,500 kilograms.





State-of-the-art float glass plants operate for more than 15 years without interruption. Once the furnace has been heated up, it can no longer be stopped. The plant therefore has to meet extremely high requirements in terms of reliability. Any interruption in production – even for only a few hours – costs the operating company an enormous amount. The highest quality, reliable availability and a long service life are therefore absolutely essential for Grenzebach plants.

Any company planning a float glass plant anywhere in the world knows and appreciates Grenzebach. The Group has established itself as the world market leader in this area. About 200 complete plants and, over and above these, 200 plants with Grenzebach components are currently operating worldwide.

In the course of the years, Grenzebach has continued to refine and develop glass handling and processing systems. The material glass is available in so many different variants, and each variant has a different consistency, a different behavior during transport and processing. Irrespective of whether it is coated glass, structural and wire-reinforced glass or special glass – Grenzebach supplies plants for all requirements.

The variant of solar glass for thin-film photovoltaic modules enjoys particularly sunny prospects. It is in

this area that our group of companies is currently achieving its greatest growth in the glass sector. The demand for electricity from renewable energy resources has increased markedly in the past few years, and photovoltaic systems of various types are being installed all over the world. Recognizing this, Grenzebach embarked on a new path with thin-film technology at an early stage in order to be able to offer solutions ranging from simple to complex process sequences in the solar industry. "This technology is still in its infancy, but it offers great potential," says Egbert Wenninger, Glass Sales Director and member of the Board of Management. After all, the photovoltaically active layers of a thin-film module are 100 times thinner than conventional crystalline solar cells with silicon wafers, and are less expensive to produce. "Above all, they significantly reduce the cost per watt compared to conventional solar cells – and that is an inestimable advantage," explains Wenninger. Over the coming years, there will be major developments in terms of the efficiency of solar cells as well as cost reductions.

Grenzebach will continue to expand and perfect its product range for this sector in order to ensure that it literally enjoys a place on the sunny side in the future.



“If you can dream it, you can do it.”  
Walt Disney

**Building materials**  
are all around us every  
day: in ceilings and  
walls, as insulating and  
soundproofing materials,  
in residential buildings  
and in the workplace.  
They are materials for  
now and the future.





**No one in the construction industry can do without building panels. And the producers of building panels have come to rely on Grenzebach. After all, we are the experts right from the word go. In the Wallboard industry, the process starts with processing the raw material, be it natural or flue-gas desulfurized gypsum, supplying the complete manufacturing process right through to stacking the finished plasterboard:** Grenzebach supplies optimal processing methods and machinery, ranging from individual components through to complete turnkey plants. And our expertise is applied equally for building materials of all kinds. Whether the panels are made from plasterboard, cement fiber, mineral wool, rock wool or wood fiber: our engineers and technicians understand the different characteristics of the materials, and take account of them when designing and building the machines. Dryers, saw plants, conveyor lines, cooling stations, stacking devices, palletizing and packing stations are just a few of the components involved in all aspects of building material production. However complex the line, all elements will interact perfectly, with the help of intelligent control systems which we tune to the individual requirements of our customers. Grenzebach has built up a leading role for itself in this area, worldwide.

It is the ambition of the Grenzebach Group to offer an ever wider range of plants and machinery that can be used for various applications. "Whenever a customer wants to talk about manufacturing building panels or insulating materials, we want to be their first point of contact worldwide," says Dr. Christoph Habighorst, Sales Director for Building Materials and a member of the Board of Management. describing the objective. "Irrespective of whether we are dealing with drywall panels such as plasterboard or insulating panels for acoustic or thermal insulation – everything that has to do with walls is our domain", Dr. Habighorst continues. We know the individual composition of the individual materials very well, therefore we can design tailor-made plants and processes for all building material producers. "With our own 'in-house' expertise,





Grenzebach is ideally placed to meet the global demand for the planning and implementation of complete plants". We can meet all our customer's requirements concerned with an entire project. When required, we are skilled in all aspects of 'turnkey' projects, building not only our own production equipment, but the manufacturing hall as well. Halls may have to be a kilometer or more in length in order to accommodate systems of this kind. "Thinking big" is a concept that comes naturally to Grenzebach.

"Wood is good" is a saying that is often heard at Grenzebach. After all, wood is recognized as a high-quality product for use in building and processing, and has outstanding properties. We have many years experience in wood processing and finishing and are able to respond to a broad range of application options for wood, such as support structures in plywood. Our full range of well proven machinery for the wood processing industry includes complete lines for high-grade veneers, veneer and plywood plants and production lines for wood fiber insulating panels. All the machines and apparatus for cutting and peeling veneers, as well as drying them, are manufactured in Bad Hersfeld. The exhaust gases from dryer systems used in all of these plants are usually

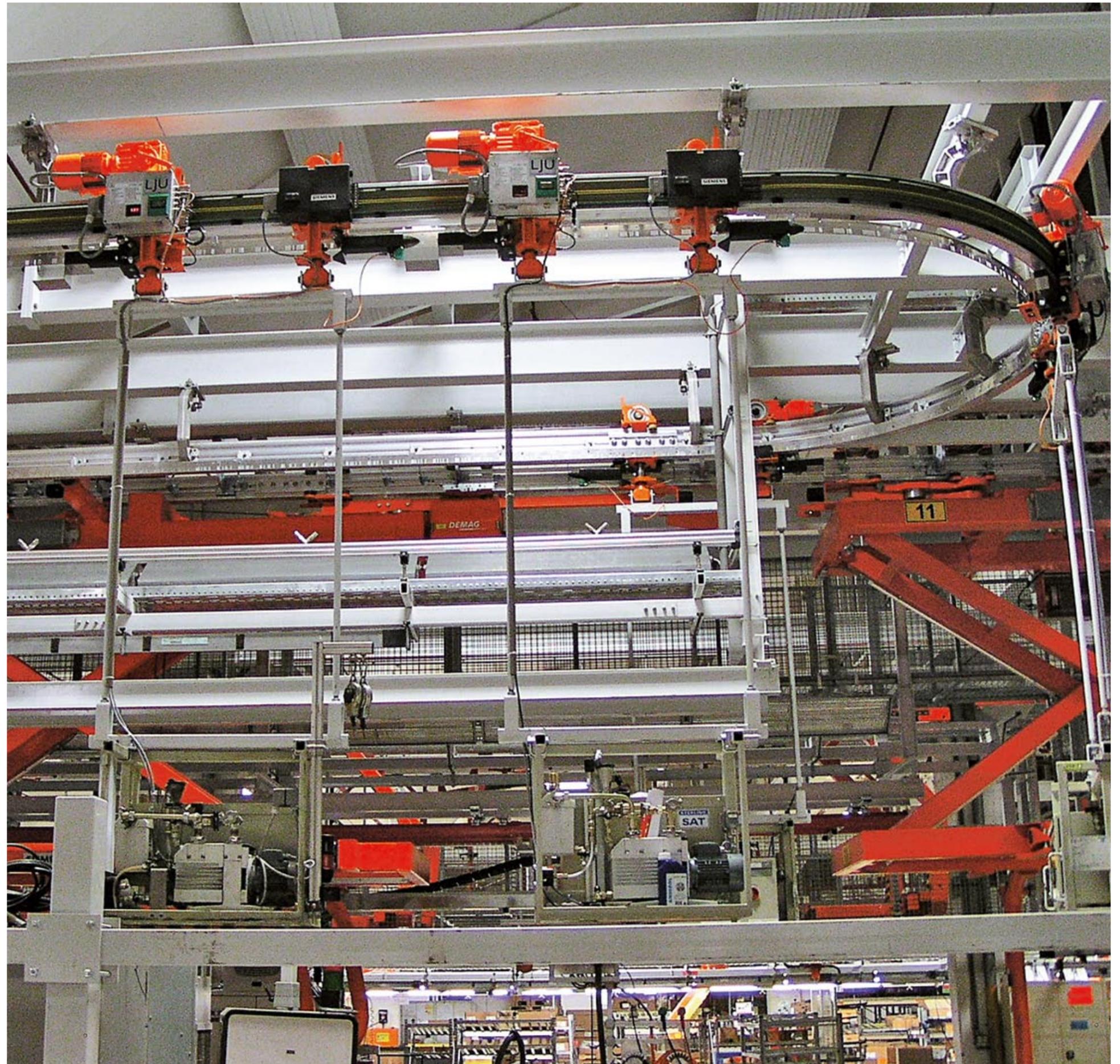
contaminated with resins and phenols with their associated noxious odors. However, Grenzebach has developed methods to prevent the formation of these pollutants.

Process engineering is becoming increasingly important in the Building Materials division at Grenzebach. "We are experts in dealing with heat," explains Dr. Habighorst. "Thermal processes for heating, reducing, calcinating, oxidizing, cooling and, above all, drying substances of all kinds are part of our expertise." A customer's raw material samples are checked in our laboratories using test machines to examine their suitability for processing. Large-scale tests are conducted to check the correct dimensions and configuration. We supply machinery for calcination of chemical substances, processing molding sand from foundries, drying coal, etc. All in all, drying plays a very special role. The slogan "We dry everything" is no exaggeration; it is not just tea, coffee, spices, fruit and vegetables that can be made long-lasting using high-performance systems; the same goes for minerals and paste-like or glutinous substances. Our engineers are experts in handling such difficult substances, and are accordingly in great demand as partners in environmental technology. And we at Grenzebach find that "green technology" is particularly satisfying!



“As soon as you are a master in one area,  
you should become a student in a new one.”  
Gerhart Hauptmann

**General Industry**  
Diversifying,  
transferring  
technologies, tapping  
new industries  
and markets  
with tailor-made  
solutions





**Grenzbach specifically targets new markets. What is important is to optimize procedures in a wide variety of industries and to diversify our product range. We are specialists in conveyor, control and handling technology. We combine expertise from these three areas to produce a broad spectrum of solutions.** Strategically speaking, we develop tailor-made plants for existing and new customers, which means we encounter new challenges time and time again. Grenzbach's customers know that they get the best technical solution from us. And at a fair price. Our developments and advances into new markets are grouped together in our General Industry sales division. We are committed to holistic concepts with the greatest possible efficiency. Indeed, we want our customers to experience time and time again what Aristotle meant when he said "The whole is more than the sum of its parts".

The "blue ribbon" application when it comes to automated stacking and loading of complex articles is the handling of baggage. Our ingenious baggage handling system for airports puts us in the same category as Champions League winners. After all, the "game" with items of baggage that vary in shape, weight and size,

have different surface structures and are also delivered in a random sequence and orientation, demands the greatest possible flexibility, intelligence and precision. The unique and patented system from Grenzbach Automation uses KUKA industrial robots in order to load baggage into flight containers fully automatically. The advantages compared to existing systems: a drastic increase in the efficiency of the loading process, significant reduction of the space requirement and even greater baggage security. An initial robotic cell from Grenzbach has been operating successfully in an existing baggage handling system at Amsterdam's Schiphol Airport for some years now. "Another six robotic baggageloading cells are starting operation in the new South Terminal at Amsterdam this summer," says Roman Kaiser, the Managing Director of Grenzbach Automation, looking forward to the new development. "We will soon be introducing our technology into further major airports."

Grenzbach uses its experience of coping with an extremely high level of difficulty in order to plan and produce complex systems for other industries. "Similar tasks are encountered whenever differently shaped containers, cartons or other packages

have to be handled automatically. For example, in the order picking of foodstuffs and consumer goods which have to be collated in batches of the same item or as a complete mixture on pallets for delivery to customers or branches," explains Bruno Geiger, Chief Sales Officer of the Grenzbach Group and Head of Sales in General Industry. This procedure is still usually performed manually. Thanks to its expertise in this sector, Grenzbach is the partner and supplier for the design, provision and integration of customer-specific handling solutions. Irrespective of whether it is a matter of moving articles, order picking for yoghurt pots and biscuit tins, for example, or stacking boxes and books of various sizes.

In addition to handling, conveying technology is also a key component of intralogistic solutions. Grenzbach offers a wide range of vehicles and equipment for automating in-plant materials handling. The automotive industry is one of the main users. After all, automated vehicles from Grenzbach are ideal for particularly flexible and high-speed transport (up to 5 meters/second) or for frequently required heavy-duty transport (up to 40 metric tons) between production or storage areas in factories. Electric overhead conveyors, transfer carriage

ges and traversers from Grenzbach are integrated into perfectly coordinated sequences. "Following the incorporation of LJU Automatisierungstechnik, Grenzbach now has the expertise for additional application options with state-of-the-art and efficient control electronics all under one roof. This allows us to use the well-established, flexible component technology in automated guided vehicle (AGV) systems as well, enabling flexible transport on existing routes," says Bruno Geiger. As if by magic, the AGVs are controlled with great precision – from self-propelled trolleys through to freely navigating mobile vehicles. Grenzbach thus provides an extremely modern capability of using space efficiently, making it possible for the company to reinforce and expand its position as a partner for the automotive industry.

“The solution is always  
simple, you just need to find it.”  
Aleksandr Solzhenitsyn

**Service**  
at Grenzebach:  
Round the clock.  
Round the globe.  
The 24/7 principle  
applies – availability  
24 hours a day,  
7 days a week.

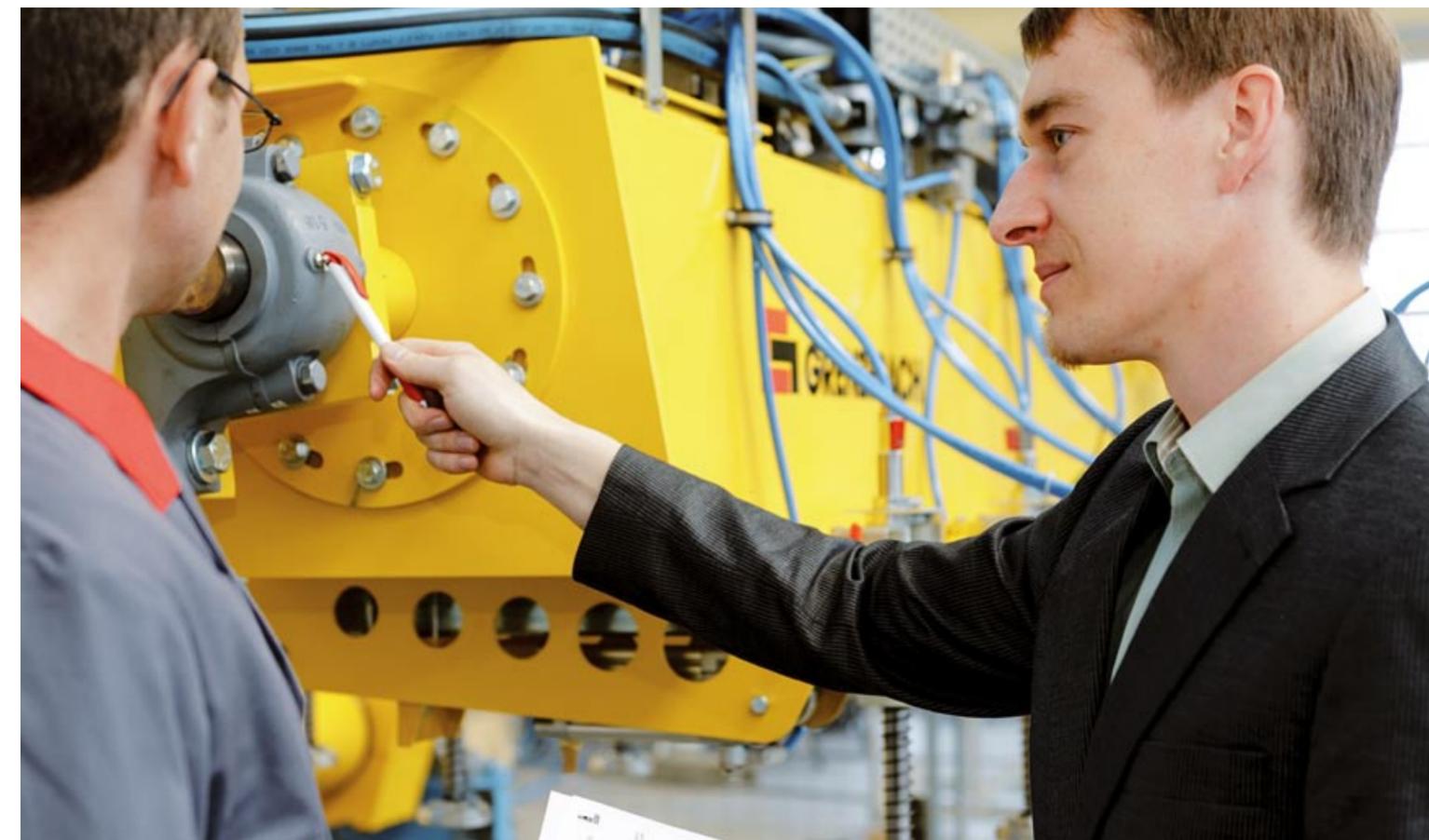




**Grenzebach always finds a solution. Even if it is not always easy. After all, the entire Group is focused on its customers' requirements. We know that smoothly running plants and machinery form the basis for success. Reliability, Expertise, Rapid action are key Grenzebach maxims.**

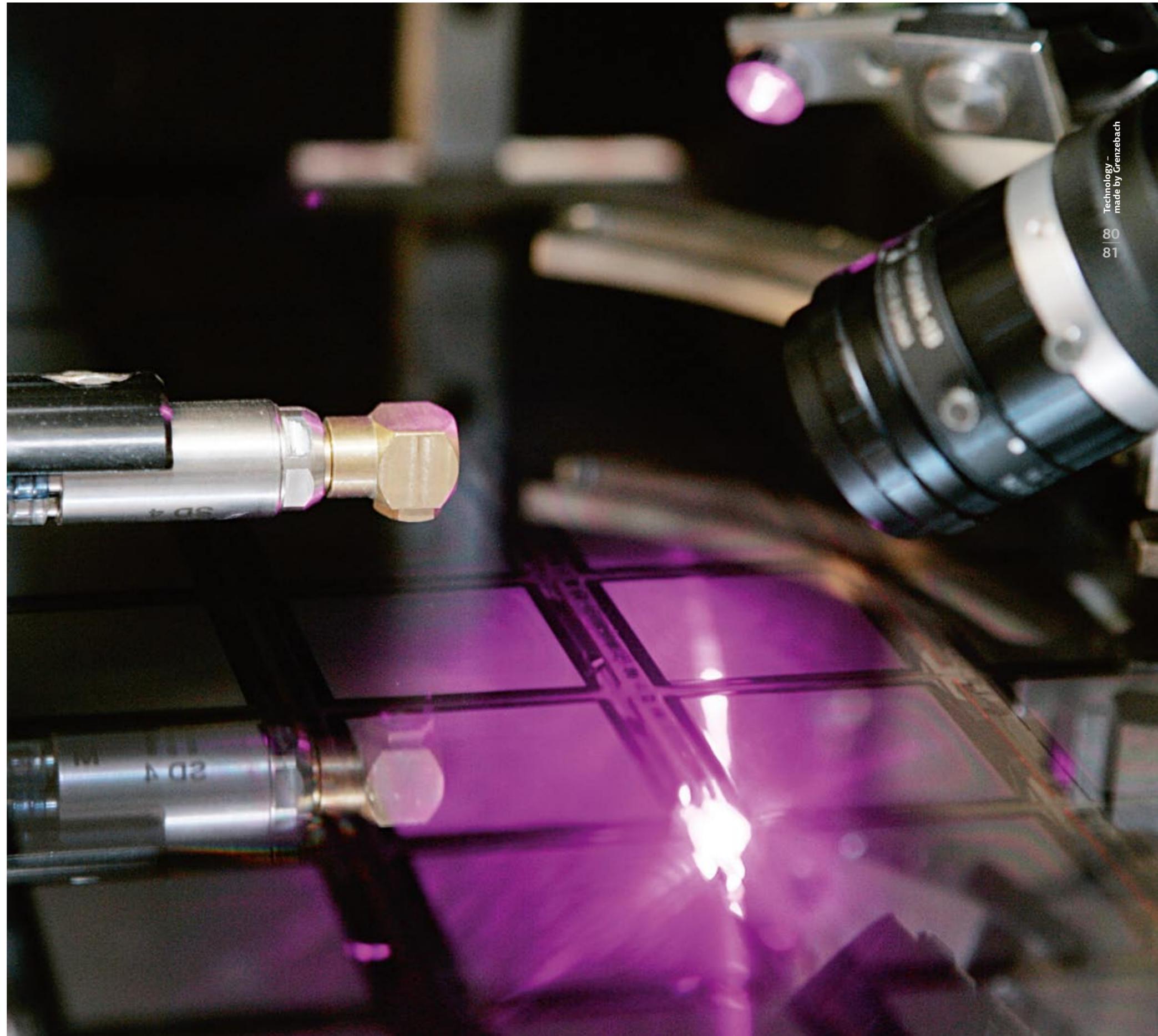
The production plants we supply are an important cornerstone for our customers' success. We take this responsibility very seriously. Therefore, service at Grenzebach is concentrated in a separate sales division. From the initial machine design right through production, Grenzebach engineers go to great lengths to ensure long serviceability and the highest possible quality and precision. "We accompany our customers through all operating phases of the plants," emphasizes Wolfgang Ritzka, Service Director and member of the Board of Management. Grenzebach companies located all over the world employ qualified employees to provide installation, startup and training services in that region, so that customers can be supported in their own language, their own culture and their own time zone. "Even so", says Ritzka "we don't leave anything to chance; we use the latest technology and media to keep in permanent touch." For example, Grenzebach can – on request –

access the customer's control system remotely, monitor operations and intervene with corrective action if required. We always keep a close eye on the plants we have supplied, and respond immediately when required – anywhere in the world. Far-ranging vision, expertise, preventative action and close cooperation with customers make it possible to guarantee that our plants will operate safely and precisely over decades. It is often the case that our customers' requirements and their products will change over time. Software updates enable our engineers to adapt the functions of the plants accordingly. Our comprehensive 'peace-of-mind' package with integrated spare parts supply is very popular with many customers. This ensures the plants are always maintained in peak condition both now and for the future.



You see things; and you say, 'Why?'  
But I dream things that never were;  
and I say, 'Why not?'  
George Bernard Shaw

**Innovations**  
It is only possible to  
achieve a technological  
lead by turning dreams  
into reality.



**The only way to conquer world markets is to have your nose in front and to have a sixth sense for top-grade technological solutions.**

We conduct research and development in all directions, and we work steadily to make the dreams and wishes of our customers – and our own too – come true. This is expressed in the fact that the technology in Grenzebach systems is always that bit more precise, faster and more efficient. Or that entirely new components are developed in order to expand and supplement our product range. The following examples are just a few innovations from the past few years:



New insulating materials from old newspapers

## Thanks to wood fiber insulating systems

“Who wants yesterday’s paper?” This saying highlights the short half-life of newspapers, although Grenzebach has the answer: our customers are keen to receive old newspapers indeed in vast amounts. To enable them to be processed, Grenzebach supplies complete systems for converting wastepaper into fibers. The old newspapers are then turned into a high-quality, environmentally friendly and easily installed insulating material for buildings. The core of this technology is a whirlwind mill that supplies the paper flakes following optimum fibrillation, with an extremely low dust content, and is regarded as the best of its kind in the industry. The cellulose insulating material manufactured on Grenzebach systems is a recent alternative to insulating materials made from rock wool or glass wool. It is completely safe in terms of health and ecology, because it is made from natural fibers. Other advantages: the cellulose insulating material has top insulating properties and an extraordinarily high volumetric consistency. The

most important feature of the insulating material made using Grenzebach technology is its high quality. The machine operates highly efficiently, is straightforward to use and offers high levels of availability combined with low maintenance requirements. Customers react accordingly: Grenzebach is the leader in machines for wood fiber insulating materials.



Turning up the heat

## The Grenzebach cupola furnace

The Grenzebach Group supplies complete production lines for producing insulating materials such as glass wool and rock wool. Our most recent achievement, a viable new concept for fusing mineral wool, is the result of a joint venture project.

The central product here is the gas-fired cupola furnace from Grenzebach. It is ideally suited for fusing shaped blocks as well as mineral charge materials. Previously, coke-fired cupola furnaces carried out this procedure. However, the gas-fired cupola furnace is cheaper to run, which means it can be used for lower production outputs as well. And it is environmentally friendly: The CO<sub>2</sub> emissions are significantly below the legal limits.

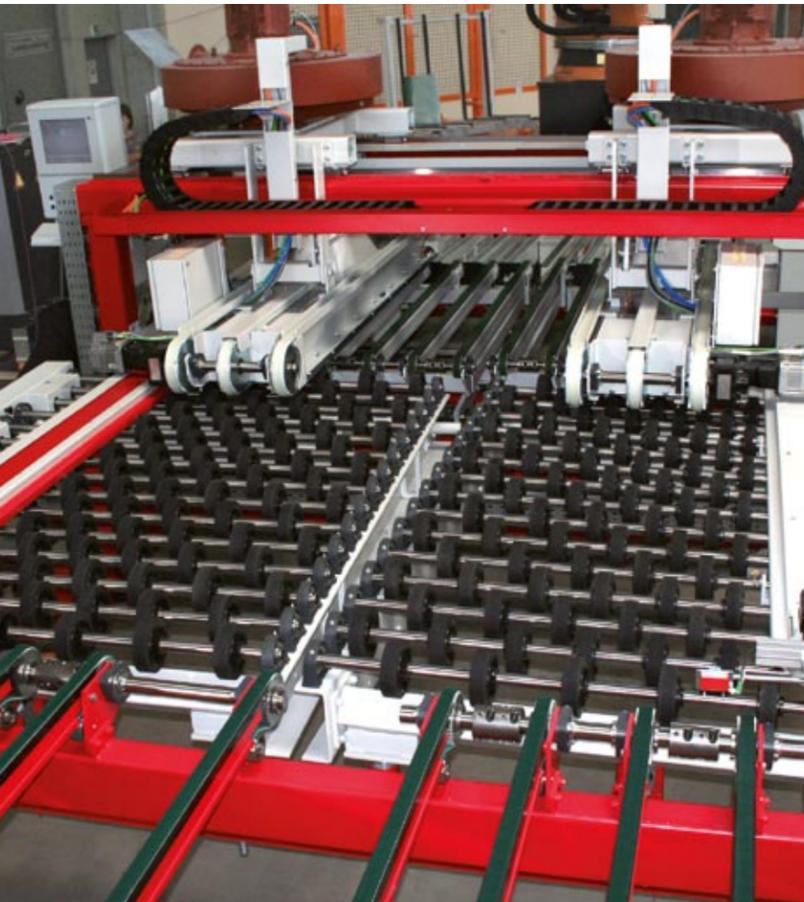
Grenzebach is enhancing its product portfolio for cupola furnaces with additional plant components. For example, Grenzebach is now integrating briquetting and charging of the furnace into the overall plant with the usual high level of quality, as well as offering various handling devices for fiber production, mat production and lots more besides. Post-combustion and energy recovery systems are of course also part of the plant concept.



Not just clean, really clean

## Clean room technology

Clean room technology is one of the most recent developments by the Grenzebach Group. This means the machines have to operate with hardly any dust at all. This is absolutely essential when manufacturing displays for televisions or mobile phones, because any grain of dust would be a problem on a surface of that kind. Grenzebach delivers clean room apparatus for this market, and tests by the Fraunhofer Institute have put this apparatus in clean room category 100 or ISO 3. This means that the maximum level of contamination would be equivalent to throwing three matches into Lake Constance – in other words, practically zero. This ISO 14644-1 certification means that the market in systems for loading and unloading, glass transport and other typical handling activities for manufacturing flat panel displays has been opened up for Grenzebach.



The quickest of its kind

## High-speed stacker from Grenzebach

This Grenzebach stacker is a real high performer within a complete system. It is the quickest of its kind and can pick up and stack up to 80 glass sheets per minute. Even smaller sizes of 40 x 50 cm, such as are commonly made in American float glass plants, can be effortlessly moved by the high-speed stacker in next to no time. The high-speed stacker is very popular with Grenzebach customers both because of its high cycle rates and because it is exceedingly clever in terms of technology as well. For example, the glass can be placed both lengthways and crossways, as well as with the "air side" to the inside or the outside.



Best insulation

## The new vacuum insulating glass (VIG)

The production of sheets of glass with significantly improved insulating values represents a promising future technology. The new vacuum insulating glass (VIG) has heat transmission values that would otherwise only be possible with triple glazing. Instead of using a noble gas in between the panes for insulating purposes as in the past, VIG has a vacuum between two panes. This vacuum provides extraordinarily good insulation. In addition, the complete glazed panel is very thin, because the vacuum between the two panes of glass only needs to be about 1 mm thick. As a result, window glazing of this kind is perfectly suited for renovating old buildings. VIG is a real product for the future, but it does need a special manufacturing process. Grenzebach is conducting intensive research and development here. The first complete pilot plant for manufacturing vacuum insulating glass is planned for the near future.



Intimate bond

## Ultrasonic welding unites metal and glass

Wherever metal meets glass, the connection has previously been of rather short duration. However, interfaces of this kind are widely used in practice, such as in façade elements or brackets for solar modules. Grenzebach has addressed this topic and already registered a patent for ultrasonic welding. This process makes it possible to achieve a lasting bond between glass and metal. At present, the technology for ultrasonic welding is still being improved and refined; a test machine is already running. There are many interesting potential applications for this process, representing new markets for the Grenzebach Group once again.

installed plants

4950

countries

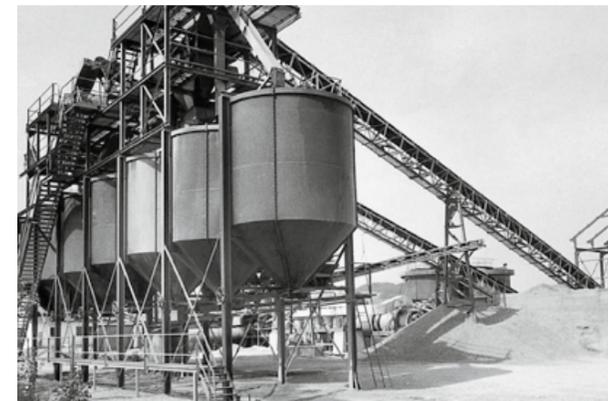
## FROM A CRAFTSMAN'S WORKSHOP TO A SPECIAL MACHINE BUILDER

Our history – from the beginnings to the present day

86  
87



## History Looking back – our history from humble beginnings to the present day



Until 1960: Rudolf Grenzebach works in the agricultural machinery workshop of his father, Josef. The business, purely concerned with agricultural machinery to start with, is first expanded with the construction of grain aeration systems and agricultural silos.



1960: Rudolf Grenzebach founds Grenzebach Maschinenbau GmbH. At the time, the workforce is 7 strong. Establishment of a production facility for conveyor systems; conversion from a dealership and repair company into a machine builder. Conveying system for a wood grain printing line.



From 1962 onwards: On a roll with cheese: development of conveying and handling systems for major dairies and cheese factories. First exports to France.

From 1965 onwards: Boom in the furniture industry: planning and production of plants for manufacturing particle boards.

## SPECIALIZATION IN GLASS TECHNOLOGY

## EXPANSION OF THE EXPORT BUSINESS WORLD MARKET LEADER FOR FLOAT GLASS PLANTS FOUNDATION OF THE US SUBSIDIARY



Concerns about being too dependent on the cheese and furniture industries prompt the young Grenzebach engineering company to look for a new field of activity offering good prospects. Flat glass is targeted as a market with great growth potential following the invention of the Pilkington float process. The decade is characterized by opening up this new market and by the endeavor to develop tailor-made solutions for the flat glass industry.

The 1980s are characterized by further development of our plants for the glass industry. We concentrate increasingly on foreign markets. Demand is at a high level, and our export business expands rapidly. The success is remarkable: by the end of the decade, Grenzebach can call itself the global market leader for float glass plants. The first foreign subsidiary is founded in the US state of Georgia in order to provide greater proximity to American customers.



From 1974 onwards:  
Development of the world's first finishing systems for the float glass production process.



From 1976 onwards:  
Expansion of float systems with various components such as cutting and snapping lines, as well as handling systems for stacking and even fully automatic box packaging machines.



From 1977 onwards:  
The adoption of microelectronics represents a key decision in this period. As early as 1977, through cooperation with research centers, work starts on development of an in-house electronics department for the control of complex production processes. Nowadays, modern industrial control systems are indispensable, and they form part of our core expertise.



1986: Foundation of Grenzebach Electronics and, as a result, increased development of in-house microelectronic controllers for production equipment.



1988: Foundation of Grenzebach Corporation in Newnan, near Atlanta, Georgia/USA. Design and manufacturing are carried on at this location too right from the start.

**EXPANSION OF BUILDING MATERIALS TECHNOLOGY  
AS A SECOND PILLAR OF THE COMPANY  
ESTABLISHMENT OF AN OPERATING BASE IN CHINA**



The main focus of the 1990s involves building up a second major product line. Plants and machinery for the building materials industry are developed on the basis of experience in the wood sector. For Grenzebach, this heralds a new age with immense growth opportunities for the coming years. Grenzebach increasingly expands its expertise as a plant manufacturer for the glass and building materials sectors. The internationalization of the company continues at the same time. A sales office is founded in Shanghai.

**EXPANSION IN ALL AREAS:  
THE DECADE OF GLOBALIZATION  
AND DIVERSIFICATION**



Grenzebach expands intensively in the new millennium. Strategic partnerships are forged, companies purchased, foreign subsidiaries founded. In 2002, a milestone is laid with the takeover of Babcock BSH, a company almost as large as Grenzebach in Hamlar. The investment pays off: building materials become as important as glass. At the same time, the product range is expanded with new technologies for veneer manufacture and process engineering. The production of plants for solar glass is becoming ever more significant. In addition, the foundations for the General Industry sector are laid.



1998: Foundation of a sales subsidiary in China. The location selected is the metropolis of Shanghai, a rapidly burgeoning economic center. From this base, Grenzebach serves

the Chinese and Asian markets, making it the local point of contact.



1998: Bernd Minning is appointed as sole Chief Executive Officer at Grenzebach.



1999: Grenzebach develops the first dryer for plasterboard panels.

2001: Expansion of the location in China to include production

2001: Foundation of Fördertechnik GmbH in order to supplement the in-house product range for General Industry.

2002: Purchase of AKI Corporation in Oregon, USA. This company specializes in manufacturing dryer systems for building materials. AKI is integrated into Grenzebach Corporation at Newnan in 2004.



2002: Acquisition of Babcock BSH in Bad Hersfeld. As a result, Grenzebach is the global market leader not only with plants for the float glass industry, but also in the building materials sector.



2004: Majority holding in Onero GmbH (baggage handling), Karlsruhe.

2006: Purchase of AAT GmbH in Karlsruhe. Foundation of Grenzebach Automation GmbH as an amalgamation of the companies Fördertechnik, Onero and AAT. Individually planned material flow lines are manufactured for the logistics industry, the automotive industry and, for example, the foodstuffs industry, with process control and management systems.



2006: Foundation of Grenzebach Machinery Pvt Ltd. in Poona, India; a wholly owned company for sales and service.

## THE COMPANY GROWS INTO AN INTERNATIONAL GROUP

## A TURNKEY VENDOR: GRENZEBACH SUPPLIES EVERYTHING – FROM INDIVIDUAL MACHINES TO TURNKEY FACTORIES GREATER CUSTOMER LOYALTY DUE TO A GLOBAL SERVICE NETWORK INNOVATIONS IN ADDITIONAL MARKETS



The vision of a globally operating group of companies becomes reality with production locations in the three major currency blocks of Europe, USA and Asia, as well as sales and service centers in the new growth markets.

One of Grenzebach's unique selling points is its ability to deliver everything from a single source: from the individual machine through to a complete, turnkey plasterboard plant – ready to run. Grenzebach is an ever-present partner for its customers – in simulating, dimensioning and building the plant. The 24/7 service network of Grenzebach offers its customers comprehensive support worldwide for their ongoing production operations. New generations of inspection systems permit better quality standards. Intelligent sensor technology opens up new markets for handling systems – including robots.



2008: Expansion of global presence through sales and service offices in Italy, Russia and Taiwan.



2007: Grenzebach acquires a holding in the US company Millennium Control Systems, LLC, based in Cleveland, Ohio. Millennium specializes in control systems and automation technology and is responsible for programming controllers for the US market and also in some cases for South America and Europe. The partnership is developing well and is characterized by close cooperation: Millennium has established an additional office directly at Grenzebach Corporation.



2008: Opening of the second production location in China, close to Shanghai, in Jiashan with 21,000 square meters production area (Plant 2)



2008/9: Purchase of shares in KUKA AG, Augsburg. Grenzebach becomes the major shareholder of the robotics group. The strategic investment enhances synergy effects for both companies.



2009: Majority holding in LJU Automatisierungstechnik in Potsdam as a location for innovative control solutions and automation technology in the automotive and logistics industries.



2009: Purchase of Grenzebach Algoscans, Munich, as a location for innovative inspection solutions and inline sensors. Solutions for the glass industry, solar industry, film manufacture, semiconductor industry, building materials industry and special machinery.



2009: Opening of the vocational education and training center in Hammlar  
2010: The Grenzebach training center in Shanghai starts its work



2010: Majority holding in Inos Automationssoftware, Stuttgart. Multi-dimensional recognition software combined with intelligent sensor technology for the automotive industry and a wide range of robotic applications.

years

50

anniversary

**Roots and growth**  
Grenzebach remains  
a family-owned  
company.



“Tradition is not the worship of  
shes, but preservation of fire.”  
Gustav Mahler

Grenzebach Family

**Looking ahead with strong roots is a characteristic feature of the family.** The founder’s generation set the course for the company to continue on the right track. The group of companies is retained in family ownership.



**The values that were important for the founder Rudolf Grenzebach and his wife Maria are also obligations for the next generation:**

**Solid growth, a secure financial position not only in terms of the equity ratio but also liquidity, investment in the future, responsibility to employees, and customer orientation are just some of the foundation stones on which the Grenzebach Group is built and will continue to build in the future.**

As in most families, the lives of individual members take different courses. Daughter Sonja is the only one of the next Grenzebach generation who is currently active in the Group’s operations today. She has been responsible for Marketing since March 2010. However, the entire family gets involved in company matters from time to time. Whenever decisions have to be taken, the partners discuss them with the Board of Management. And these discussions are held at short notice without any fuss – a mark of strength for the family firm.

**“In truth, something that only benefits me is of no real use. What matters are things that benefit our fellow human beings, the community, and society.”**

Carl Friedrich von Weizsäcker



Social commitment

## **Maria and Rudolf Grenzebach Foundation** – Giving in a spirit of gratitude

**The Grenzebach family has always displayed its social commitment in the region. A commitment to clubs and associations, culture, youth. As an entrepreneur, Rudolf Grenzebach has constantly seen it as his duty to look after the welfare of “his employees”. And it has been important to him at all times to make a contribution to the community – particularly where he lives.**

In the past, he did this on many fronts by personal commitment in work and politics, in associations and on committees. Again and again, the married couple have also supported a variety of projects and associations through donations. Maria and Rudolf Grenzebach are now marking the 80th birthday of the company’s founder by setting up a foundation.

The Maria and Rudolf Grenzebach Foundation based in Donauwörth will take up its activities in July 2010. The purpose of the foundation is to find a straightforward means of helping and giving financial support to current and former employees of the Grenzebach Group who have fallen on hard times through no fault of their own, as well as to citizens of the local region in which the Grenzebach family lives.

“We are grateful that we have the opportunity to be able to pass something on, and we hope that by doing this we will be able to offer real practical help in many cases,” says the married couple.



Rudolf Grenzebach – here talking with an employee in Bad Hersfeld – has always attached great importance to personal contact.

**“The best executive is one who has sense enough to pick good people to do what he wants them to do, and the self-restraint to keep from meddling with them while they do it.”**

Theodore Roosevelt



Young employees talking to the Chief Executive Officer

## Two different generations. Both share one thing: commitment to Grenzebach.

**One in the midst of business activities; used to taking important decisions every day and shaping the future of the company. The other generation in the middle of training, eager to prove itself. A discussion between Bernd Minning, responsible for the Grenzebach Group and Lisa Reitschuster (who has recently completed her apprenticeship in industrial business management, and is now working as a marketing assistant) also Johanna Scholz, a student on the Ulm Dual Study Model at Grenzebach, specializing in electrical engineering.**

**Lisa Reitschuster and Johanna Scholz (LR and JS):** Mr. Minning, last year everyone was talking about the economic crisis. Do we need to be worried about our future at Grenzebach?

**Bernd Minning (BM):** The global crisis certainly left its mark on us as well. We had to work very hard to deal with the decline in orders during 2009. But we responded in good time, and I am pleased to reassure you that the Grenzebach Group is on a firm footing. We are noticing an economic upswing in 2010. For example, we have already received more orders during the first five months than in the whole of the previous year. Generally speaking, our global presence is a benefit for us; in China, for example, the crisis has not been as severe as in other countries, therefore our sales in Asia were partly able to offset dips in the US and European markets. But when you talk about your future with us, what do you actually mean by that?

**LR:** I think my work here is really exciting. I am involved in organizing trade shows all over the world. This international environment, coordinating lots of deadlines

and bringing people together, are all things that I like. And it is nice that I can learn something new here every day. I appreciate the cooperation and variety in the Group, and I want to benefit as much as possible from this global philosophy.

**JS:** Yes, this international stance is really a superb opportunity for us young employees here. I am already looking forward to getting to know our locations abroad, and maybe even working there for a while. I am fascinated by Grenzebach's technology, the expertise we have and how we go about finding solutions. After my course finishes, I hope that I might have an opportunity in product development at Grenzebach.

**BM:** Well, there are certainly lots of opportunities with us. We are an open-minded company which rewards commitment with advancement. In Germany, we do not have the raw materials to be a rich oil state or anything of that sort. Our "raw material" is education. Young people like you are our potential for the future; permanent learning is a guarantee of personal further development, as well as the success of our company. That is why it is so important for us to push ahead with training and qualification of our employees. And I myself also learn new things every day. That is why my work here remains so enjoyable.

**LR and JS:** So what are your objectives for our Group?

**BM:** Our most important objective is to ensure that our company can be handed on to the next generations. We have laid the foundations for this: we have an international structure and our own production plants in the three major currency blocks; we can serve our customers

on the ground quickly and reliably through our service locations; and we are permanently investing in new products and new technologies. We have built up a global technological lead for ourselves. And our greatest trump card is our workforce who are highly qualified and incredibly committed.

However, we must never rest on our laurels, therefore we need to continuously build on our technological leadership. At the same time, we must optimize our internal procedures constantly and reduce our manufacturing costs so that Grenzebach technology remains affordable to our customers, and we maintain our competitive edge. We also have to strive for technological leadership in new business areas. In this way, we can make ourselves immune to fluctuations in isolated markets. That is the way to secure our future.

Strategic partnerships are incredibly important for me. We do not need to re-invent the wheel every time, nor do our own development work. In these rapidly changing times, it makes sense to work together with other companies who are leaders in their field. Then we can jointly present optimum solutions to customers.

To do this, we need employees who are open to new approaches, and who cooperate with our partners to work out optimum solutions for our customers. That's why I am delighted that we have young, committed people like you in our company! And I hope that this is not just because the food in our canteen is so great (laughs).

**LR and JS:** Well, that certainly is one reason, but seriously: we like it here. And not just because communication is so straightforward and the decision-making pathways are short. We have noticed that it is quite

acceptable for us to express our opinion to our boss, and that our suggestions are taken seriously. This is part of the Grenzebach culture, and is something that we notice time and time again. However, we are a bit curious to know whether it is the same in the management team? How do you yourself deal with criticism?

**BM:** Criticism? Why criticism? I'm always right after all (grins) ... Of course, I was only joking. I am very glad that you like the atmosphere in our company so much. We want to have an open company culture in which ideas can be exchanged back and forth through the hierarchies. Everyone should be able to talk with everyone else, and want to do so, and of course this is what we do in the management team as well. It is quite acceptable to inject a bit of humor, but we know that we are playing for high stakes and that we can rely on one another. I myself am open to criticism as long as it is constructive. There are many ways to skin a cat. In our company, everyone has the freedom that they need to carry out their work under their own responsibility. After all, we are all judged by our results. And, in the end, one thing must be clear: we can only be satisfied with ourselves if the customer is satisfied with us. This is a task that we can only accomplish in a team.

**LR and JS:** We are pleased that we are part of this team. Thank you for the discussion.

**BM:** I thank you too. So, back to work. After all, you know that the future starts **now**.



# Imprint

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Photos: René Gaens, Grenzebach Maschinenbau, Judith Häusler,  
Jo Teichmann, Thinkstock  
Printing: Schätzl Druck & Medien e.K., Donauwörth  
Date of publication: July 2010  
Edition: 4,000