1/2007

livingmetals

EXCELLENCE IN POWDER METALLURGY

plansee GROUP

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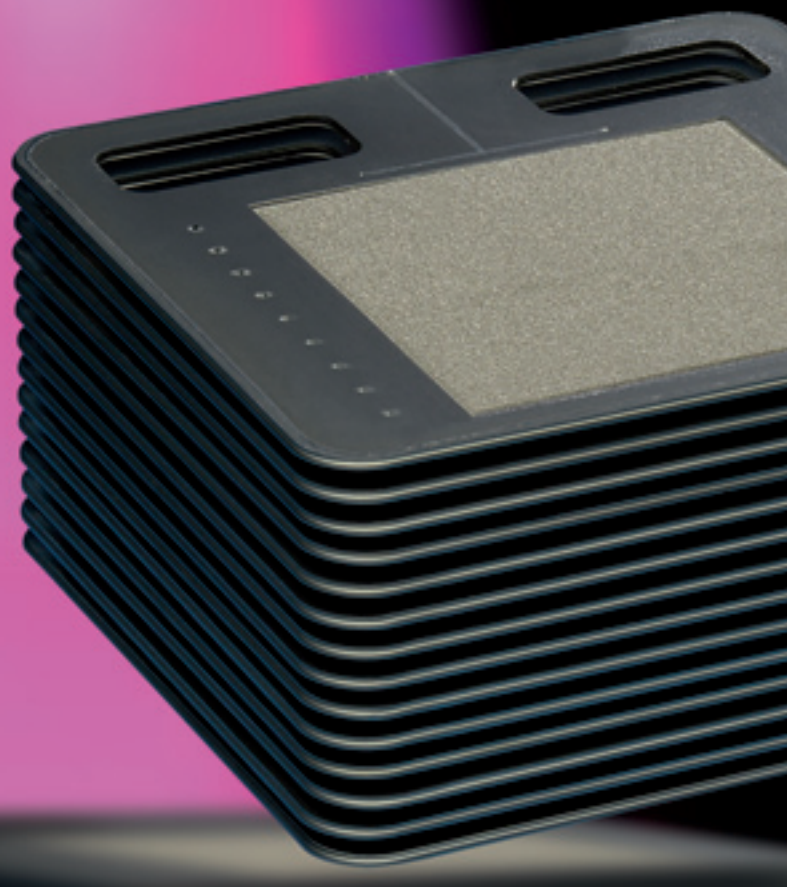
Ceratizit:
Acquisition of
Newcomer Products

Plansee Group:
Continued growth

WNT:
Total tooling
in Spain

PMG:
Local content
in China



Power engineering market sees rapid growth

Dear readers,

The worldwide demand for energy is growing rapidly. Experts predict that by 2015, the amount of power used will triple to almost 1,000 gigawatts.

At the same time, in his film "An inconvenient truth," Al Gore has put himself at the forefront of an unprecedented movement to reduce greenhouse gases.

Financial markets and corporations have recognized the huge opportunities offered by environmentally sound products and technologies and are investing heavily in this mass market of the future.

The power engineering market is already well established, and Plansee Group companies have spent many years researching extremely durable materials and developing new solutions to meet the demands of this growing industry.

Although generating technologies such as nuclear fusion (as reported in the 02/2006 issue of Living Metals) are still decades away from commercial viability, the breakthrough of high-temperature fuel cells is imminent. Plansee is producing coated metallic components (cover story, pp 10-13) for this application. Technologies such as solar power and wind turbines are progressing rapidly, and the Plansee Group has already made a significant contribution to this development with its coatings and machining solutions.

As important as generating technologies are efficient electricity transmission systems. A portrait on our subsidiary company Elektro-Metall, which specializes in producing switching systems for electricity transmissions and distributions networks, can be found on pages 14 and 15.

Wishing you an enjoyable read,

Dénes Széchényi
Editor of Living Metals

power engineering

CONTENT

Title:
Interconnectors for fuel cells.
Picture by courtesy
of BMW/Elring Klinger.

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Ceratizit acquires Newcomer Products

Ceratizit, the Plansee Group's hardmetals and tools division, acquired the US company Newcomer Products, Inc. By acquiring Newcomer Products, the Plansee Group has strengthened its position in the US hardmetal products market. In the United States, the three Plansee Group divisions employ approximately 1,000 people in ten production and sales companies.

Privately owned Newcomer Products, headquartered in Latrobe, Pennsylvania, specializes in the manufacture of cemented carbide products for metal cutting and wear applications. The company was founded in 1945. Today Newcomer Products employs 130 people and achieved sales of over 20 million dollars in 2006.

Local content in China

PMG China is further expanding its capacities to serve the growing Chinese automotive market locally.

The installation of a new 500-tonne compacting press represents a major step forward in PMG Shanghai's expansion program. As well as increasing capacity, the machine will also extend the factory's technical capabilities.

The press will be used to produce sintered parts for some of the biggest carmakers in the world, including Volkswagen and General Motors in China. PMG Group is one of the worldwide leading suppliers of PM-Products to the automotive industry.

Continued growth for the Plansee Group

The 2006/07 fiscal year saw the Plansee Group's consolidated sales rise by 13 percent, to a total of 971 million euros, and its number of employees increase to 5,550. Record investment of 121 million euros ensured the Group continued its growth around the world, while a range of acquisitions and the establishment of new businesses strengthened the Group's global presence.

In the last fiscal year, the Plansee Group continued to grow and increased its market share in every business area. The largest increases in sales were recorded in Germany, Japan, the USA and Taiwan. Asia now accounts for 29 percent of the Group's total sales.

Michael Schwarzkopf, chairman of the Plansee Group's Executive Board, comments: "We benefited from the general upturn in the economy, as did the success of German companies in Asia, most notably in China and India." There was considerable demand for products in segments including mechanical engineering, electronics, medical technology, the construction industry and power engineering.

By acquiring a new production site in the USA and setting up four sales offices in Mexico, Italy and Spain, the Group has also increased its presence in key markets.

The Group also made record investments of over 121 million euros in production sites, facilities and new products. The total area of production plants will increase by around 375,000 square feet in 2007. Worldwide the Plansee Group will have invested approximately 400 million euros within the three business years 2005/06 to 2007/08. Half of that amount is invested at the Reutte site in Austria.

The number of employees rose by 500 to 5,550. A major emphasis was to push the recruiting activities.

investments

Major investments: The new production plant at the Reutte site in Austria amounts to more than 100,000 square feet.

"We benefited from the general upturn in the economy" says Michael Schwarzkopf, Chairman of the Plansee Group's Executive Board.

Michael Schwarzkopf: "The initiative to position the Plansee Group as a globally attractive employer was successfully launched. A range of international staff and management development programs have been introduced to strengthen employees' long-term commitment to the company, and the aim is to fill eight out of ten management positions internally".

The Group achieved further growth in the first quarter of the current fiscal year. However there has been a slowdown in some of the company's markets, and the condition of the US automotive industry requires a careful review.

Overall, the chairman expects a stable development for the Group in the 2007/08 fiscal year, although he has reiterated the importance of employing strategies to clearly differentiate the Plansee businesses from the competition and managing costs effectively. These strategies are essential for the Group's long-term growth in the face of rising raw material and energy costs, unpredictable exchange rates, and increasing competition in nearly every business area.

Annual report published

The Plansee Group's 2006/07 annual report "Facts & Figures" informs employees, customers and the public about the most significant developments within the Group over the last fiscal year.

As well as key financial figures, the report also contains details of the Plansee Group's sites around the world, and shows product highlights in the Group's three divisions – Plansee High Performance Materials, Ceratizit and PMG. "Facts & Figures" is available in both English and German. To request a copy, please contact oswald.kaerle@plansee.com or visit www.plansee-group.com.

06/07

Total tooling in Spain

interview

The foundation of WNT Ibérica, a sales office in Madrid/Spain, marks a major step forward in the WNT Group's European expansion. Living Metals caught up with Spain's managing director Ramiro Bengochea.

The WNT Group, a rapidly-expanding Ceratizit business unit, is specialized in sales of cutting tools to small and medium-sized businesses via regional representatives. WNT was founded in Germany in 1987 and now operates in twelve European countries.

Living Metals: What do you offer customers in Spain?
Ramiro Bengochea: We offer a sales structure that has already proven success in eleven European countries and delivery of 41,000 cutting tools within 24 hours.

What is unique about WNT?
We offer the right cutting tool for the right machine, within the right timeframe. Our sales staff are cutting engineers – not salesmen – and they are uniquely positioned to help our customers find the perfect cutting solution. Our offering is summarized by the claim "Total tooling = quality x service^2".

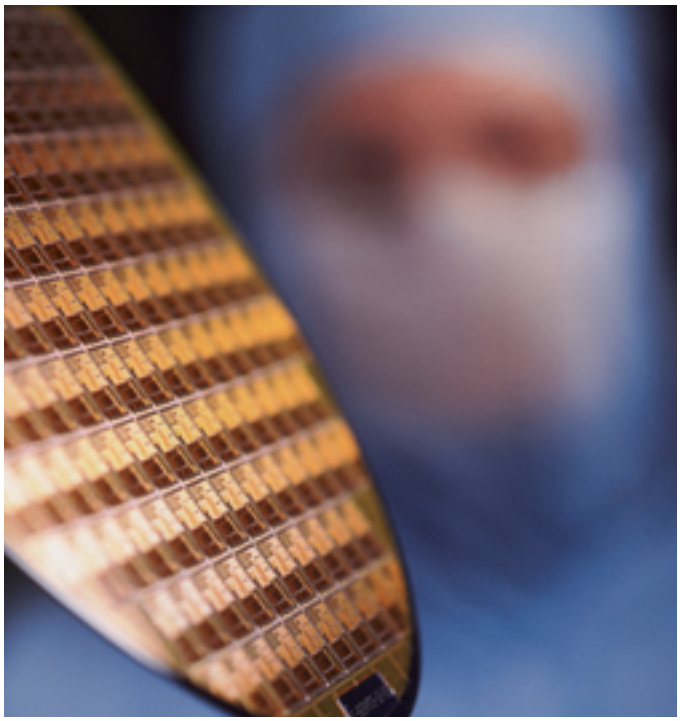
How can customers order your products?
They can call our toll free hotline, send us a fax, visit our online store (the Tooling Center) or order directly from one of our local application engineers. As long as we receive the order by 6:30 p.m., it's 99% guaranteed that the order will be delivered the following day.

How would you summarize your philosophy?
Our customers care about their work. We offer them expert advice and provide a simple, swift ordering service, while ensuring that each of our products is of the highest quality and are delivered the next day. In short, our customers can rely on us – that's total tooling. |

Acquisition of Electro-Graph completed

With the completion of the acquisition of Electro-Graph, a company with sales of 20 million dollars in 2006, Plansee High Performance Materials has further strengthened its position as a supplier of refractory metal components to the semiconductor industry.

Plansee now has production plants for this segment in Asia, Europe and America. Electro-Graph is specialized in the design, manufacture and sale of components for the semiconductor industry and second source parts (where it is the market leader) in the USA.



Electro-Graph supplies components to the semiconductor industry.

Sales offices in Mexico and Italy

In order to better service the Mexican market, Ceratizit has established a sales office in Querétaro, the country's most economically dynamic region.

The move comes as part of Ceratizit's efforts to drive sales of cutting tools and wear protection solutions. Board member Thierry Wolter comments, "Around the world, established companies in the automotive, aeronautics, machine construction and petro-chemical industries employ Ceratizit cutting tools when working with high-quality materials. As well as this, we also develop wear protection solutions that maximize the lifespan of tools and components. By opening a sales office in Mexico, local customers will now have direct, swift access to our application technology and logistical expertise."

To continue serving the important Italian market, Plansee High Performance Materials has opened a sales office in Milan. Previously, the company was successfully represented in the region by a sales partner.

global service

PM stainless steel camshaft pulley for outboard motors wins design award.

Scott Davis of PMG (right) receives the award from Edul M. Daver, president of MPIF.

PMG wins design award

The American Metal Powder Industries Federation (MPIF) recently gave PMG a design award for a PM stainless steel camshaft pulley used in outboard motors.

The camshaft pulley was designed and built for Japanese sports boat manufacturer Yamaha Marine, and is used in 115-horsepower outboard motors.

Using PM technology in the manufacturing process means that the camshaft pulley can be pressed from stainless steel powder and then sintered. The only secondary operation required is the machining of the inner diameter counter bore. To produce the pulley, a special powder-mixing technique is used. This involves first coating the particles with a liquid binder, then adding a special lubricant.

PMG: New production line in Austria

PMG, the PM-Products division of Plansee Group, is expanding its activities with the construction of a new production line for planetary carriers in Reutte, Austria.

The decision will result in the creation of 20 new jobs. Planetary carriers are used in automatic gearboxes. Production will start in January 2008.

Plansee Group increased this year's investment budget for the Reutte site by 3.9 million euros to almost 62 million euros to build the new production facility.

Tooling

Cutting made easy

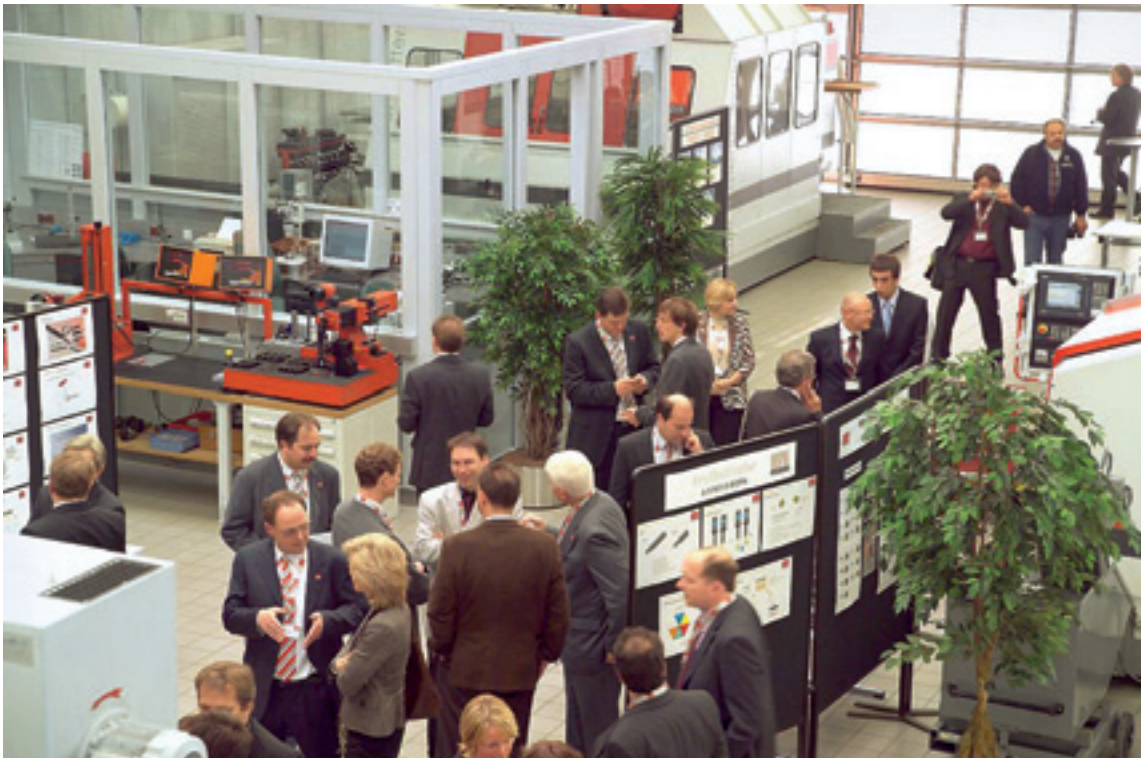
Mid-March saw the opening of Ceratizit's Tooling Academy in Reutte, Austria. The launch event gave customers and representatives of the trade press the opportunity to find out at first hand about the activities of the company's cutting tools department.

During the opening speech, board member Thierry Wolter thanked customers for their support: "Your trust in Ceratizit has enabled us to become one of Europe's most successful providers of ultra-hard material solutions."

Uwe Schleinkofer, head of development for cutting tools explained the many ways in which customers can benefit from the new Academy: "They can learn about new and existing products, optimize their cutting processes and test new and unusual materials. They can also carry out thorough evaluations of new cutting tool products and map out all stages in the machining process – from adjusting the tool settings, through to machining the part, right up to the final quality control."

Thomas Lochbihler from the German machinery manufacturer Deckel Maho spoke about the successful collaboration between his company and Ceratizit. To illustrate Ceratizit's technical capabilities, he cited the high-performance milling spindle used in the manufacture of aircraft components – which offers 20 percent better cutting performance than similar products on the market.

The Tooling Academy at the site in Reutte is Ceratizit's main training and test center. As well as being used for testing new products and training sales employees, it also serves as a research center for customers – if they are finding it difficult to machine certain materials, the center will look into this and recommend suitable tools for the job. The Tooling Academy is equipped with both machining tools and a range of analytical devices.



Breakthrough for fuel cells

When hydrogen and oxygen combine, they generate electricity and heat, leaving nothing behind except water. For many years now, a whole industry has been dedicated to applying this seemingly simple principle to the production of sustainable energy. Now, success is about to move a step closer with the imminent commercial breakthrough of the fuel cell.

Each high-temperature fuel cell features hundreds of thin metal plates to ensure the reaction is controlled, indeed, these metallic interconnectors are one of the cell's most important components. Mass producing the powder metallurgical precision components is a considerable technological challenge – and one that is met by Plansee High Performance Materials.

fuel cell

Fuel cells are no longer the sole preserve of high-tech laboratories, and the technology is now commercially available – albeit at high cost. However, this development is only a small step on the way to industrial production of maintenance-free fuel cells, and a range of interdisciplinary R&D teams (drawn from industry and academia) are currently working on the key areas of technology and materials, while attempting to drive down costs.

Fuel cells can be divided into two categories: low temperature fuel cells, which run at or below 200°C, and high temperature fuel cells, which operate between 650 and 1000°C. High temperature fuel cells are generally seen as offering most potential for stationary distributed power generation and special mobile applications, as they are highly efficient when generating electricity, can run on a wide range of fuel sources, and are likely to be the least expensive to mass produce and maintain.

Industrial cooperation of Plansee and Sulzer Metco: coating solutions for ready-to-stack metallic interconnectors.

WHAT HAPPENS IN THE FUEL CELL AND WHERE ARE THEY USED?

An electro-chemical reaction in the fuel cell produces electricity directly from the fuel. The main benefits of fuel cells are that they operate silently, produce no emissions, and are far more efficient than traditional technology such as gasoline/diesel engines or gas turbines.

The fuel cell itself runs on hydrogen, but combined with appropriate pre-processing such as steam reforming and partial oxidatation, it can also be powered by fuels such as natural gas, biogas, methanol, diesel and gasoline. Fuel cells thus form a link between today's fossil fuel energy production, and the hydrogen-based energy production of the future.

A range of major markets are set to open up, in terms of decentralized energy provision to factories, hospitals and residential complexes with combined heat and power plants, as well as commercial vehicles and passenger cars. Vehicles fitted with fuel cells are essentially reactors on wheels, and are powered by electricity produced on-board (extremely efficiently) by the cells.

Cost-effective powder metallurgical production of net shape components.

Metallic components, known as interconnectors, play a key role in maximizing the lifespan of high-temperature fuel cells. They are fitted between the individual cells, which are arranged behind one another in high-temperature systems. Powder metallurgical interconnectors offer a host of benefits, such as specific alloys for each application, unrivalled mechanical and chemical robustness during service, first-rate processing reliability, and proven potential for ramp-up to industrial scale.

Plansee High Performance Materials has been providing this growth market with technologically-advanced, coated metallic key components for a number of years now, and is working to establish its products for high temperature fuel cells as the industry standard.

Plansee's components for stationary and mobile high-temperature fuel cells ensure the reaction of the gases in the cells' core is stable, safe, controlled and lasting. A range of gases including natural gas, reformed diesel, biogas, propane, ethanol, and pure hydrogen can be used for the reaction.

In order to further develop and produce ready-to-use interconnectors for high temperature stacks (for both stationary and mobile applications), Plansee recently entered into a technical cooperation with Sulzer Metco. Sulzer Metco offers highly efficient protective coating solutions using advanced plasma spray technology. |

future

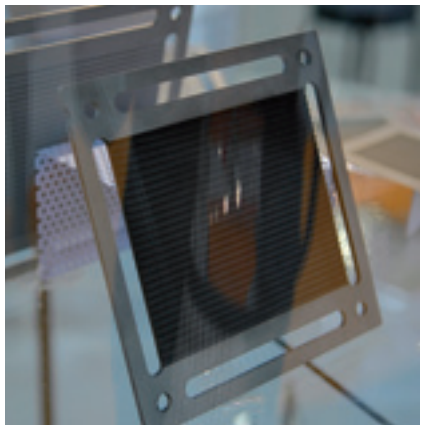
Materials expertise for high-tech fuel cells

Plansee utilizes its specific core competencies in the development and production of metallic interconnectors for high-temperature fuel cells:

- High-performance powder metallurgical alloys, specifically designed for high temperatures, e.g. resilient, corrosion-resistant and with a perfect CTE (coefficient of thermal expansion)
- Cost-effective powder metallurgical production of net shape components
- Highly-efficient functional coating solutions
- Quality assurance processes and process capability levels that meet high-temperature fuel cell manufacturers' requirements in terms of delivery, order sizes, quality and unit costs.

Plansee unveiled a range of products to the public at the Hannover fair in April 2007:

- Stationary high-temperature fuel cells: Powder metallurgical, chrome-based interconnectors, e.g. in houses and residential complexes (combined heat and power plants).
- Mobile high-temperature fuel cells: Interconnector cassettes made of a powder metallurgical iron/chrome alloy and metal-supported cells, made of a porous powder metallurgical iron/chrome substrate with a ceramic functional plating.



energy

Quality assurance processes that meet fuel cell manufacturers' requirements in terms of delivery, order sizes, quality and unit costs.

Ready-to-install components for power transmission and distribution

The worldwide growing demand for energy means that substantial investment in infrastructure technology for power generation is needed. The market for products and components used in power transmission and distribution is growing rapidly.

Overall across the world, highly complex transmission networks for electricity can experience cut-outs as a result of events such as lightning strikes, cables breaking or heavy snowfall – leaving cities and even entire regions paralyzed and in darkness for hours or even days.

Because of this, energy producers have placed a major emphasis on the safety of supply networks for power transmission. This change in emphasis can be put down to the often ailing networks found in industrial countries and the rapid increase in demand for

Ready-to-install tungsten-copper components for power transmission (high voltage).

power

Production site of Elektro-Metall

energy in growth markets and remote regions. Also modern production plants are relying more than ever on reliable, continuous energy supply.

As a strategic supplier to major power systems suppliers and a world market leader in powder metallurgically manufactured products and components, the Swiss company Elektro-Metall markets technologically reliable, durable and extremely temperature-resistant switching systems that protect transmission networks and energy distribution plants.

Operating in a fiercely competitive market, Elektro-Metall's success is down to its outstanding global customer relationship management, its ability to supply ready-to-install components for breaking chambers and its consistent improvements to material combinations and machining and joining technologies.

Vacuum and arcing contacts and contact systems from Elektro-Metall form the main part of the breaking chamber, and are put under extreme pressure during switching operations. Because of arcing light, surfaces can be subjected to temperatures of several thousand degrees for fractions of a second.

Elektro-Metall, a subsidiary of Plansee High Performance Materials, is a specialist manufacturer of sinter materials and high-tech joining and machining technologies for application in high and medium voltage technologies.

Ready-to-install copper-chromium components for power distribution (medium voltage).

The turquoise tint of the niobium is created by an exceptionally thin oxide layer – not by color application.

Shimmering turquoise niobium

Attracting coin collectors and material engineers alike: the new 25-euro bimetal coin with turquoise niobium core from Plansee.

Niobium is traditionally used in the construction of chemical plants, in high vacuum and high temperature technology, in lighting technology and electronics, and in biocompatible implants. However, a shiny version of the material – which is usually colorless – can now also be found in the fifth edition of the Plansee's bimetal coin series.

The niobium is given its unique appearance by the refraction of light, as anodic oxidation covers the light-grey niobium with an ultra-thin (billionths of a milimetre) oxide layer.

Plansee treats the surface of the niobium in such a way that the light refracts perfectly (interference colors), increasing the luminosity of the color. Worldwide, the process is only employed for the production of these coins.

Rods at the push of a button

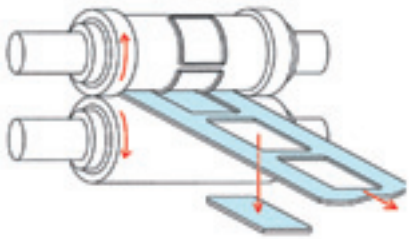
QuickService from Ceratizit provides customers with tailor-made rods within three days of placing an order.

Using a variant configurator, sales staff are able to draw up a quote for the rods – according to factors such as length, diameter, type, coolant bore and number required – within a matter of minutes.

Once the QuickService order has been placed, the whole process is exceptionally swift: the order is automatically sent to production, then, as soon as they are ready, the rods are sent out to the customer via Ceratizit's logistics centre.

In the future, Ceratizit also plans to introduce an online variant configurator, so that customers can have direct access to QuickService.

Ceratizit blanks are mounted on steel shafts (contracted) and ground sharply. Two contra-rotating rolls cut millions of diapers a day from the wadding.



Shaping the diaper

There's quite a contrast between the soft babies' bottoms these diapers keep dry and the hardness of the machines that manufacture them.

In the mass production of tissue products such as diapers, sanitary napkins and make-up, the durability of the high-precision cutting rolls involved is key. Hard metal specialist Ceratizit produces pre-shaped blanks on an individual basis or in very small runs.

As manufacturers continually make minor adjustments to the designs of diapers and similar, it is not practical to keep cutting rolls in stock. As a result, Ceratizit offers short, reliable delivery times for the blanks, which are produced using powder metallurgy. To minimize the amount of cutting work the customer has to do, Ceratizit supplies exact pre-shaped blanks. The company is able to do this by employing precise sinter processes, programming the machines exactly and milling within extremely narrow tolerances.

Trainee

Opportunities for young graduates

The Plansee Group's dynamic development constantly demands new skills – new trainee scheme develops young people with potential.

Now the company offers ambitious young graduates places on trainee schemes with significant potential to lead to a long-term career in a variety of different areas – including general and project management, and technical fields. Science and engineering graduates can choose in which area of the company to join a training scheme. The Plansee Group offers opportunities in sales, production, IT, finance and R&D. The schemes last between 12 and 18 months, and the customized learning programs include both on-the-job training and seminars and workshops.

Interested? Please apply online at www.plansee-group.com |

Management consultant Professor Herman Simon.

"Hidden champions" more successful than ever

The guest speaker at this year's Plansee Group management meeting was Professor Herman Simon.

In his speech, Professor Simon talked about the strategies that certain companies, which he refers to as "hidden champions," have used to ensure success over the last decades. He also named the strategies that will contribute to success in the 21st century – including setting ambitious growth targets, clearly defining target markets, using globalization as a driver of growth and ensuring that research and development activities are highly-effective.

According to Professor Simon, "hidden champions" are companies which are world leaders in their fields. Although largely unknown by the public, they are global market leaders who surpass their competitors in terms of quality, service and customer relationship management by far. "Hidden champions" achieve viable sales volumes by marketing their products globally. |

Published in 13 languages

The Code of Conduct of Plansee Group has been distributed in brochure format to all employees worldwide. It has been translated into 13 languages.

The Plansee Group has drawn up the Code of Conduct in light of its increasing globalization. The code lays down five guiding principles of business conduct.

X-ray target for medical technology

PLANSEE CERATIZIT PMG

Three divisions - one aim: Excellence in powder metallurgy

Electronics

Lighting technology

Medical technology

Power engineering

Mechanical engineering

Automotive industry

Construction industry

To address the highly specialized requirements of our customers in future industries, we have concentrated our material competence into three independent divisions: Plansee High Performance Materials, Ceratizit Hard materials & Tools and PMG PM-Products. In this way, we guarantee selective marketing, a targeted customer approach and individually-tailored product solutions.

As a private company, our thoughts and actions are focused on the long term, and our present investment is aimed at securing our leading position in powder metallurgy for the future. With the support of a unique corporate and innovation culture embracing our entire workforce, all our efforts are directed towards the achievement of one aim: **Excellence in powder metallurgy.**

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www.plansee-group.com

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