

# Salt Bath Hardening: Key Technology for High Quality Drilling and Milling Cutter Tools



Everyday, more than 130,000 quality tools are leaving the production site of the traditional Austrian ALPEN-MAYKESTAG, 80 % of which were salt bath heat treated using Durferfrit salts.

This year, the ALPEN-MAYKESTAG group is celebrating its 50th anniversary. ALPEN-MAYKESTAG was founded in 1957, and is now based in Puch, close to Salzburg-City, Austria. On 1. January 2006, ALPEN-MAYKESTAG moved into an attractive, modern new building, from where the tool manufacturer now coordinates the activities of its more than 300 employees, to ensure that the group annually produces more than 35 million quality tools at several plants in Austria and Italy.

The company has two business divisions: Precision tools for trade and industry are produced under the brand name ALPEN, and are now also being sold at well-known and renowned retailer warehouses. High-performance tools for industrial metal cutting are manufactured under the brand name MAYKESTAG.

With own distribution companies in Germany, Italy, the Czech Republic, Hungary and Slovenia, as well as general agencies in more than 60 countries, ALPEN-MAYKESTAG is represented today on every continent. The export rate is over 70 %.

"ALPEN offers professional craftsmen appropriate drilling tools for every job with outstanding cutting properties, long endurance and convincing cost-efficiency.

It is our strategy to set highest possible value on quality standards in these business fields. Our growth rates show that we are on the right track", says Gerhard Hummer, CEO of ALPEN-MAYKESTAG.

The customer target group benefits from the companies high-tech ventures. For example; high productive cutting (HPC) demands the use of a milling cutter made of solid carbide with ultra-hard carbide coating, and extreme rigidity. For high speed cutting (HSC), an entire series of HSC milling cutters is available, which features true running accuracy and shaft precision. This also applies for dry operation. As soon as you start reducing lubrication and cooling, you need to increase the tool quality to ensure longer tool life. Excellent hot strength and extreme thermal wear resist-



Franz Krenn (left) and CEO Gerhard Hummer (right) of ALPEN-MAYKESTAG enjoy the close collaboration with the salt bath specialist Manfred Fischbach (center) of Durferfrit GmbH.

ance are demanded. Hard milling requires milling cutters produced especially for the extreme use under high operating temperatures and high pressure close to the cutting edge.



As of 1. January 2006, these are the new headquarters of the ALPEN-MAYKESTAG GROUP: Puch, close to Salzburg City, Austria



The new salt bath equipment is almost fully automated.

### "The Salt Supplier must deliver Top Quality"

ALPEN-MAYKESTAG solid carbide tools are made of highest quality fine-grained carbide. And the powder steel tools are made exclusively using powder metallurgically processed high speed steel (HSS) with an extremely high content of vanadium and cobalt. HSS tools are always made of high-quality alloys. These high quality standards are necessary to satisfy rising market demands: "There is clearly a demand for tools which can combine a longer tool life and higher operating speeds. The performance must be improved continuously. And so the continuous performance improvement is part of our customer service, which in turn means for us: To hold on to our top position among the competitors, having to focus on technical innovation and on the procurement of high quality raw materials, especially where salt bath hardening is used as key technology to ensure the quality of our products. So we must be sure that we always receive a salt of the highest quality, to ensure a reproducible quality of our processes. The salt supplier must deliver top quality. We know that Durferrit GmbH ships only material of the highest quality", says Gerhard Hummer, highlighting the necessity of an intensive collaboration between salt supplier and manufacturer. "But we need more than just the salt. We need a service package which includes

process consulting. Together we can continuously improve the processes to the advantage of our customers. Durferrit GmbH offers decades of experience as market leader and an enormous amount of know-how, which benefits our hardening shop. This is also applied to our joint recycling concept. All in all, we can look upon our salt bath hardening process and call it ecologically sound."

Other decisive advantages of the salt bath technology are an easily controllable production process, the continuously high output quality and the possibility to give drill head and shaft an individual treatment. Taking a twist drill as an example, you can let the drill head go through the entire hardening process – whereas the shaft must only be hardened and tempered. Only salt bath technology will allow you to do this on an economically sound basis. This is especially important, as vacuum-hardened twist drills are hardened through and through, making it difficult to close the drill chuck to a point where they will not slip when in use.



### Salt Bath Technology to be Groundbreaking in Future Developments

On the market, you can currently observe a concentration of tool manufacturers which means that only those will survive being innovative and therefore better meeting the demands of their customers. As one says, you are either quick or you are dead. The close and trustful collaboration between tool manufacturer and the respective supplier of key products is an indispensable precondition to maintain critical know-how across the entire production process which helps keeping the upper hand against Asian competitors which are less expensive but qualitywise less adapted to market demands. "Looking at our wide range of products, you can see that we need a good and easily manageable salt bath process, a high level of automation and an excellent salt supplier such as the Durferrit GmbH to exploit the salt bath technology to our greatest advantage".

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