

Lach history mirrors industrial diamond progress

By Stan Herbert,
Special Correspondent

Six years ago, a man to whom diamonds were virtually a life's work died in his ninetieth year. And to the very last day of his life Jakob Lach's fascination with diamonds continued without restraint.

There can, perhaps, be no more fitting memorial to his service to the diamond industry than the modern derivative of the company he created back in 1922. Today, under the leadership of its present Managing Director Horst Lach, son of the founder, Lach Diamant employs some 170 people at its 22,000m² headquarters at Hanau, north-east of Frankfurt. And several thousand kilometres to the west, at Grand Rapids, Michigan, the company's US based satellite, Lach Diamond Inc. serves the North American and Canadian markets



▲ Founded 68 years ago, the Lach organisation today enjoys an international reputation.

and its progress through eight decades or so virtually chronicles the progress of the industrial diamond itself.

The Lach logo, depicting a diamond and toolholder, reflects its origins in single point dressing and shaping tools. But as far as its founder is concerned the involvement with diamonds goes back a long way beyond the company's 1922 beginning.

In 1908, when he was no more than fourteen years old, Jakob Lach set out to learn the craft of diamond cutting. And living in Hanau there could perhaps be no greater incentive for doing so since some thirty years earlier the town had become Germany's first diamond cutting centre.



▲ Founder of the company, Jakob Lach, 1894-1984.



▲ Generating the form on a Drebojet diamond mill dressing roll using a Lach M-1050 automatic machine incorporating the original Lach EDG process.

with a full PCD toolmaking service covering wood, plastics and automotive industry materials.

Single point diamond origins

Nearly seventy years after it was first formed, the Lach organisation remains a family business and its registered company name of Jakob Lach GmbH & Co. KG continues to acknowledge its founder. More popularly known by its short title, Lach Diamant, the company



Between them, these 12 members of Lach ▲ Diamant represent a total of 235 years service with the company. MD Horst Lach is second from right, back row.

Lach Diamant's initial product nearly 70 years ago, ► diamond dressers now form part of a much wider tool range. Here a Lach operative sets stones on a multi-point dresser.

As Horst Lach explains, 'Companies from Belgium and elsewhere moved into Hanau and by 1914 the town's gemstone industry supported more than 12,000 diamond cutters'.

The outbreak of the First World War, however, put an end to Hanau's diamond cutting trade and when peace



Diamond
Tool
Applications 2



Lach history (continued)

was restored once more Jakob Lach turned his attentions to business studies. But 1922 saw Jakob Lach’s return to the diamond tool industry, largely due to the trust and understanding of an Antwerp diamond dealer. Although inadequately financed, the Lach company’s founder obtained a parcel of diamonds and on his return to Hanau set up his own cutting shop. As his son Horst Lach observes ‘Father wasted no time on his return from Belgium, in fact he set up his new diamond cutting business on the very same day.’

New start

By 1932 the company had become known as Deutsch Industrie Diamanten Fabrike Jakob Lach, thus reflecting a significant change in the pattern of its business. In fact a swing to industrial single point diamond tooling by this time heralded the direction in which the whole future of the company was destined to follow.



▲ Part of Lach’s 22,000 m² plant at Hanau, north-east of Frankfurt.

By the outbreak of World War 2 the Jakob Lach factory employed 600 diamond cutters, half of them working inhouse and the remainder as outworkers. But once again a major war was to put paid to Hanau’s diamond industry. And with more than 85% of the town destroyed by bombing Jakob Lach had to wait until 1956 to set up in the diamond tool business again.

At this time, in a small factory in Hanau’s Bruchkobeler Landstrasse, the company reformed. Picking up where it left off, Lach applied its traditional diamond cutting expertise to single point tools and achieved a fair measure of success through sound business principles and good service to its customers.

Entry to the diamond wheel market

In 1963, three years after the present Managing Director joined his father’s company, the Lach factory began to produce resin bond diamond wheels.

And within two or three years De Beers had introduced what was then the revolutionary nickel clad grit DXDAMC for grinding steel/carbide combinations and other materials, thus enabling Lach to further its venture into the grinding wheel market.



▲ Son of the founder, Horst Lach completed 30 years in the diamond tool industry last October. Now Lach Diamant’s MD, he is seen here with Personal Assistant Rita Stein-Junkuhn.

... then the diamond aerosol spray

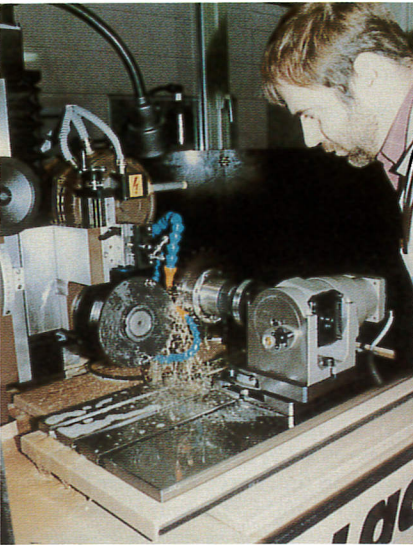
At about the same time the Lach organisation achieved what was probably its first major development to be recognized on an international basis. An idea from the young and enthusiastic Horst Lach, the company’s MF aerosol spray diamond compound for lapping and polishing served to advance its recognition more widely. And in parallel, the younger Lach began to introduce a new company image through devices such as the present logo, and using his natural marketing expertise the company gradually adopted a more commercially-based approach.

Although in the mid 1960’s the company employed no more than six or seven people, Lach increased steadily in size and strength as the years passed. And as the company grew, its technical development and product range increased in parallel.

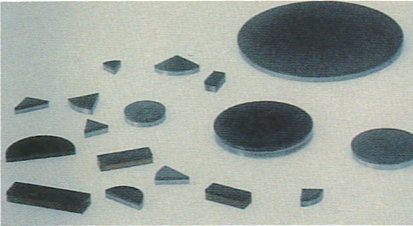
Using its traditional diamond cutting expertise Lach developed inhouse more



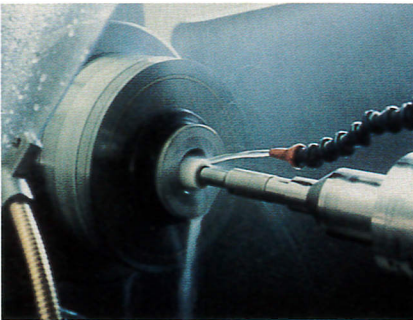
▲ Part of the reception area at Lach’s Hanau HQ.



The M-1050 automatic machine in action.



▲ Polycrystalline diamond material, showing some of the configurations used in Lach brazed tools.



▲ Internal grinding of a diamond dressing roll using a CBN wheel.

sophisticated single point profiling tools to meet the demands of new precision machines like the Swiss-built Reishauer. And interestingly enough, several of the diamond cutting craftsmen responsible for developing those 1960’s tools are still with the company today.

Record breakthrough into CBN era

But by the end of the decade the company had recognised the potential of the new cubic boron nitride (CBN) abrasive and, in fact, claims to have been one of the first in the world to have produced a CBN grinding wheel. Employing a 100/120 US mesh grit in 50 concentration, the Lach CBN resin bond wheel was designed to work at a surface speed of 18 m/s and can be said to have revolutionized the dry grinding of high speed steel (HSS) when it first appeared in September 1969.

Next the PCD & PCBN era

An industrial area in which diamond tooling has certainly made a dramatic impact in recent years is the wood products field where polycrystalline diamond (PCD) tipped saw blades, router cutters and the like have increased cost effectiveness beyond anything previously possible.

Today the Lach name is internationally recognised in this industry through its development of both PCD tooling and the purpose-designed machines needed to grind them.



▲ Members of the Italian company C2 carry out trials on a Lach PCD100 precision tool grinder during a recent visit to Hanau. Horst Lach is seen on the left.

Lach first demonstrated PCD tools at Hannover’s 1973 Spring fair. But perhaps less known is the fact that the company’s engineers had received their first PCD samples only days before the show opened. However, by 1975, having developed a full range of PCD tooling for non-ferrous materials, wood products and plastics, Lach turned its attention to the turning of hardened steel and HSS using the newly developed polycrystalline cubic boron nitride (PCBN). Today, this tool material is widely employed in the machining of hard ferrous materials and has been developed by De Beers in a number of forms such as AMBORITE, AMBRAZITE AND DBC50.

Lach history (continued)



▲ Lach’s Technical Director Jurgen Fath.



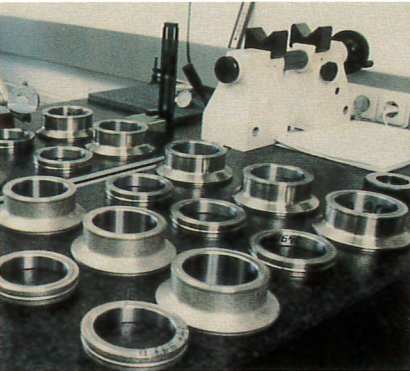
▲ Patented Drebojet mill dressing rolls, showing examples of grinding wheel profiles produced.

Claimed to be the world’s first diamond tooling for the pre-profiling of grinding wheels by milling as opposed to single point diamond machining, the Drebojet system had its validity confirmed by a Lach-sponsored research study carried out under the auspices of the University of Kaiserslautern’s Professor, Dr Warnecke.

German-American generation

The 1980’s were also of special significance to Lach Diamant since for the first time in its history it began to manufacture diamond tooling outside its home base in Germany.

Stemming directly from the interest shown as the result of a major feature published by an American woodworking magazine, Horst Lach decided to set up a satellite organisation in Michigan to



▲ Diamond dressing roll components during final inspection.



▲ Members of Lach Diamond Inc., the organisation’s Michigan-based company, with Horst Lach (centre right).

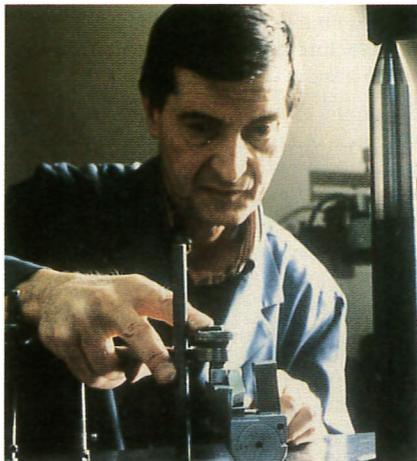
Lach’s process of development continued on through the Seventies decade and on into the Eighties, by which time the company had demonstrated new PCD tipped tools for the electronics industry during the first Productronica Show at Munich, and its revolutionary Drebojet* diamond mill dressing rolls shown for the first time at Hannover’s 1981 EMO event.

service the North American and Canadian PCD tool based markets. Led by its Hanau-born General Manager Joe Weber, Lach’s 30-strong Grand Rapids team is now an established source of PCD tooling and tool resharping expertise throughout the area’s wood based and automotive industries.

***Registered Trade Name**

Lach history (concluded)

In view of the vast increase in life expectancy offered by the PCD woodworking tool, perhaps 300 times that of its carbide counterpart, the initial investment involved in Lach's US venture can be seen as something of a bold move. But clearly the idea appears to have paid off and today toolmakers from Hanau have in some cases intermarried with local girls to form the basis of new German-American generations.



▲ Traditional diamond toolmaking remains an important part of Lach's manufacturing process. Seen here is an operation in the Natural Diamond Sharpening Department.

Complete system

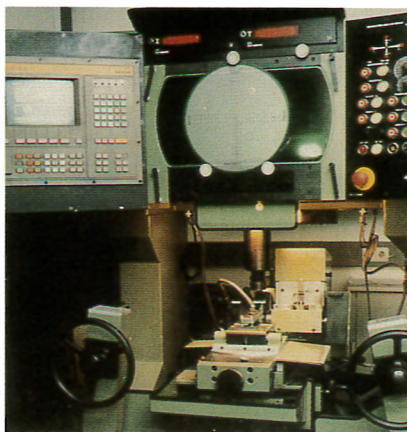
The Lach organisation's continuing development of PCD tooling over the past seven years has led to a comprehensive range of tools, notably in the area of wood-based products machining. Today, profiling router bits, slot cutters, groovers, rebating cutters, trim saws, milling cutters and scoring blades all form part of Lach's regular woodworking tool range. And it is logical enough that the company should have complemented its PCD tooling with the development of the specialized machines needed to generate the vital, precision cutting edges.

The Gold Medal award last year at Leipzig's Spring Fair highlights Lach's success in developing a complete tool and machine system and draws attention to equipment like the M-1050 universal diamond grinding machine which featured in the award.

With full CNC facilities, the M-1050 EDG machine can grind the teeth of PCD tipped saw blades up to 600mm diameter on a totally automated basis. Capable of removing up to 1.7mm³ of stock per minute, the Lach machine is currently in use in many parts of the world including Japan, Italy, Sweden, Austria, Spain, Great Britain, USA, Canada and Taiwan.



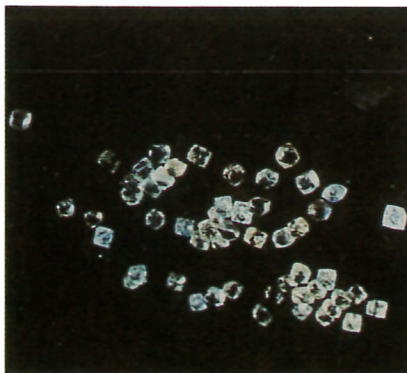
▲ Part of the Display Room at Hanau.



▲ Profile grinder used in the manufacture of Lach's high precision tools.



▲ M-3005 automatic EDG machine (splash guard removed for photographic purposes).



▲ Natural diamond octahedra used in the manufacture of single point dressers.

Joint ventures favoured

As one might expect from a company whose roots stretch back for nearly seventy years, the Lach organisation clearly has considerable technical expertise on which to draw.

Invited to comment on his company's future plans, Managing Director Horst Lach had no hesitation in responding. 'The potential for PCD', he says, 'is by no means fully exploited. We are already looking at more sophisticated tooling, at new applications and at ways of producing tools to the same high quality standards but at even more competitive prices'. Horst Lach, who personally completed thirty years in the diamond tool industry last October, also sees new developments like diamond film coatings as offering interesting possibilities for the future.



▲ Computer measuring system for strict control of diamond and CBN tool geometry.

Elaborating on his future plans for polycrystalline diamond products, Horst Lach sees considerable potential in countries such as Russia, Czechoslovakia and Hungary, as well as in the United States where, he says, there remains a considerable market for good quality woodworking tools.

The Lach organisation, which sees the joint venture as a mutually beneficial way of doing business, feels that it has a lot to offer suitable toolmaking partners. With its established technology, particularly in terms of tool and machine PCD based systems, the company claims that suitable toolmaking organisations in Eastern Europe, for example, could have much to gain from joint venture arrangements.

S.H. ♦