

EMO 2017: LACH DIAMANT Looks Back on 95 Years.

The Role of Diamonds in Modern Industries. Based on the Example of Dressing Grinding Wheels.

■ Horst Lach, managing director and CEO of LACH DIAMANT agreed to write an ongoing series of articles about the development of diamond and CBN tools and grinding wheels in modern industries. The occasion: LACH DIAMANT's 95th anniversary in the run up to EMO.

Horst Lach is known as a true industry veteran, and we are excited to have this pioneer of technology share some insights from 55 years of professional experience in the diamond tool business.

The first part will focus on wheel dressing:

We should start with a quote from LACH DIAMANT founder Jakob Lach (1894 – 1984): "When I touched my very first diamond in 1908, I would have never dreamed of the role diamonds would play in modern industry".

The start of the Industrial Revolution in the 18th and 19th century in England and Europe is directly connected to the use and development of diamonds – the hardest of all natural materials – in the tool industry. During this time, diamonds were developed into precision tools for wheel dressing in order to achieve consistent tolerances and qualities in machining metals.

A logical next step might be to replicate the hardness of diamond in a synthetic product, and thereby offset the disadvantages of natural diamonds, such as their sensitivity to impact and shock.

The production of synthetic, so-called "man-made diamonds" in the 50s proved to be a quantum leap in technology. The production of artificial diamonds is still an ongoing endeavour and it continues to impact new technologies and areas of daily life, even at the time of EMO in 2017.



Company Founder, Jakob Lach (1894 – 1984), sorting industrial diamonds.

The developments we have seen in automobiles, aviation manufacturing, space travel, and in modern electronics – and many other things have been made possible only by the precision and extremely small size of diamonds and diamond tools.

Rough diamonds, or industrial diamonds, e. g. fitted into steel holders, still play a major role in the dressing of grinding wheels, even today.

Many different kinds of diamond dressing tools were designed, built, and manufactured in the last century. The sole purpose of all these inventions was to vary the dependency on relatively expensive industrial diamonds: In the beginning, remnants of worn-off single diamonds were fitted into sintered metal and offered as so-called "multi-grain" or "multi-point" diamond dressers, at times "hedgehog" or "dust" diamonds; they were designed to replace the single diamonds. Designs such as small diamond cogs, branded "Roulette", dressing plates, or the LACH DIAMANT "drebodress" dressing tool studded with polycrystalline diamonds.

Use of spark erosion, and unleashing of new ideas:

Polished diamonds for profiling/copying of grinding wheel profiles (e. g. Fortuna, Hartex, Schaudt, Jung, Reishauer etc.) or for the copy system "diaform" presented an even larger task for the diamond grinders.

The solution was found in dressing rolls and dressing blocks with a projected profile of the tool to be sharpened. At first they were manufactured by sintering, and with manually set natural diamonds. Later, demands for higher precision called for tolerances of diamond granulation with as fine as 1.0 µm accuracy in an electro-plated negative process.

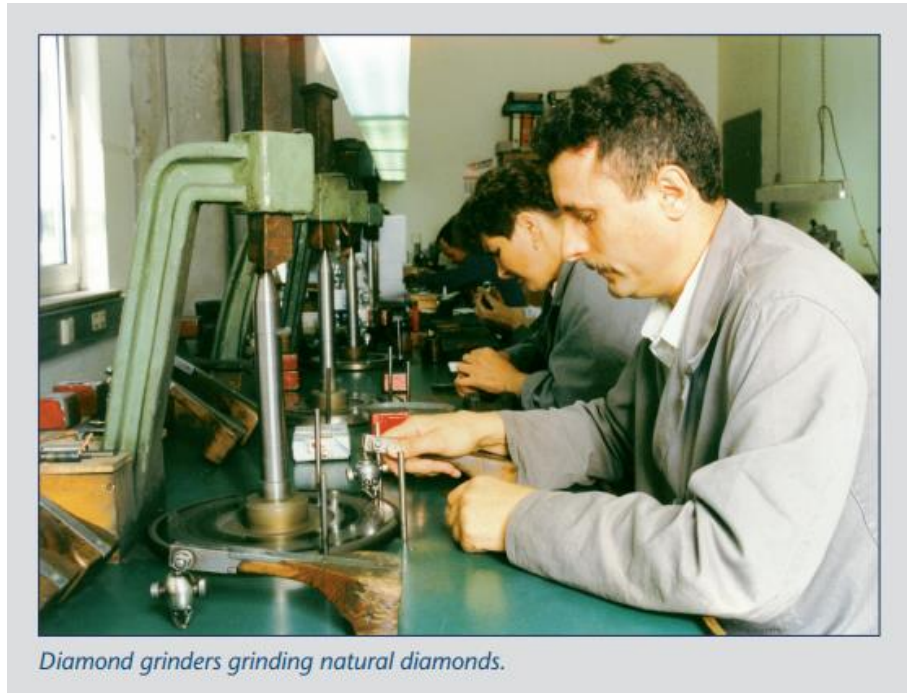


Horst Lach and his son Robert Lach.

In 1978, Horst Lach discovered spark erosion for machining and forming polycrystalline diamonds. From this moment on, soldered monoblock milling cutters were used for the machining of wood and plastics. Moreover, the idea was born to use these new PCD milling cutters (introduced as "drebojet") for the "mill dressing" of grinding wheels – a world first. LACH DIAMANT then filed the appropriate patent applications and claims.

The innovative precision dressing roll »drebojet-plus« was first introduced at AMB in 2016. It allowed for path-controlled profiling of ceramic bond CBN and conventional grinding wheels and almost perfectly represents the original »drebojet« idea.

In conclusion – and from the viewpoint of LACH DIAMANT, a family business founded by Jakob Lach in 1922 with back then 600 diamond grinders who polished gem diamonds (brilliants) – we note: Natural diamonds as industrial diamonds, fitted into steel holders or geometrically and precisely cut by diamond grinders, have become an universal dressing tool and an intrinsic and indispensable part of the industry. Their efficiency is mainly reliant on a regrounding service of the diamond supplier.

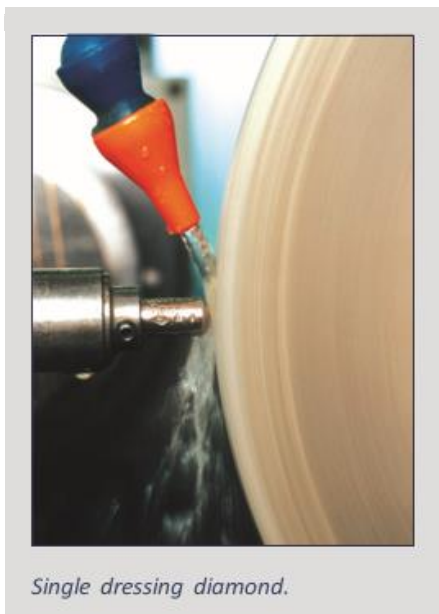


Diamond grinders grinding natural diamonds.

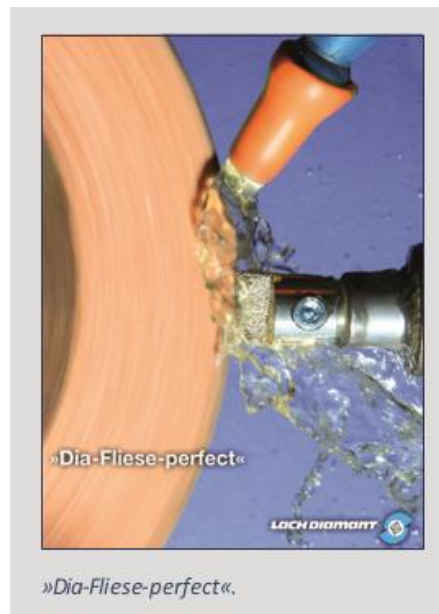
During the last few years, efficient diamond dressing plates and dressing blocks were especially successful on the market; examples are LACH DIAMANT's »Dia-Fliese-perfect« and »drebobloc«.

after Jakob Lach founded the company, LACH DIAMANT invites you to celebrate this special anniversary at EMO 2017, together with family members of the 2nd and 3rd generation.

At EMO 2017 LACH DIAMANT will demonstrate in a special performance show how the selection of the right dressing tool determines efficiency and quality. 95 years



Single dressing diamond.



»Dia-Fliese-perfect«.