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**Translated from German to English by Gudrun Cruz, GLS – German Language Service.*

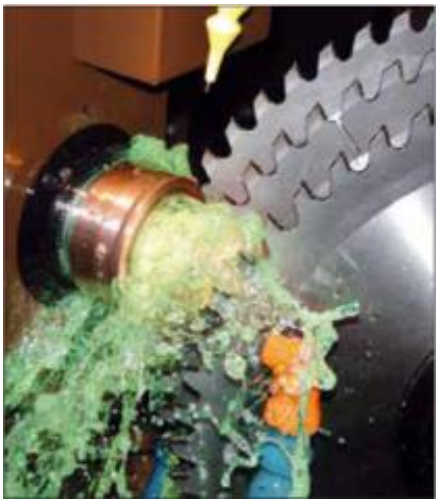
"Poly – Poly - or what?"

Part 13: Forty years of spark erosion for efficient PCD machining – utilizing sparks over grinding.

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.

Horst Lach is known as a true industry veteran, and we are excited to have this pioneer of technology share some insights from his over 60 years of professional experience in the diamond tool business. This time our focus is on "using sparks instead of grinding".

In 1978, Horst Lach had a truly sparkling idea. Initially, it led to efficient machining and forming of polycrystalline diamonds. Thanks to this revolutionary invention, it was possible to implement new technologies, based on newly created diamond tools. One example would be the machining of wood and plastics in the furniture and kitchen cabinet industry, as well as laminate and parquet flooring, circuit board, automobile, and automotive accessories industries and in many other areas.



Example: Grinding of diamond saw blades with a programme for multi-production

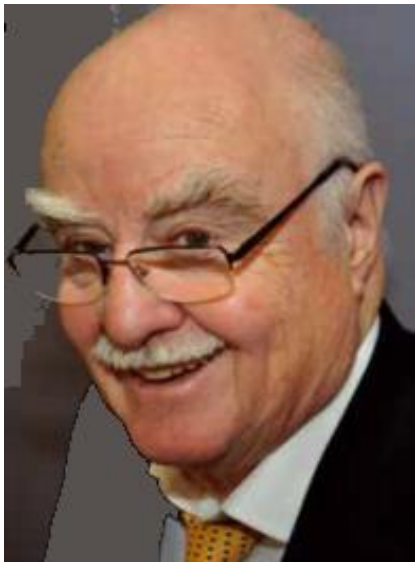
Controlled Impact

Up to 1978, traditional schools of thought held that only diamonds could be used for machining diamonds. The discovery of spark erosion and of the so-called EDG grinding method (rotation procedure – electrical discharge grinding) by Horst Lach, ignited a new, until then unimaginable, and much wider distribution and use of PCD - a material introduced to the market in 1973.

Horst Lach utilized a mere 0.5 % of traceable cobalt present in this polycrystalline compact material which otherwise consists of 99.5 % pure diamond (during diamond synthesis, single diamond grains with a size of 0 to for example 35µ are compressed under high pressure and heat and thus stimulated to grow). Under the controlled impact from electric sparks, single diamond grains are stimulated to break free from the grip of the electrically conductive cobalt.

Pioneering PCD Tools

LACH DIAMANT, only two years away from its 100th anniversary since Horst Lach's father, Jakob Lach, founded the company, did not only use electric sparks for the development of pioneering PCD tools. In order to create an efficient, precise procedure for forming functional cutting edges on tools, the electric spark had to be integrated with the diamond blade or the tool-moving axes and edge controlers, respectively.
This was the beginning of LACH DIAMANT as machine manufacturer. Today, in 2020, automatic LACH DIAMANT grinding machines for the production and sharpening of polycrystalline diamond tools can be found all over the world. A new generation



Horst Lach had a sparkling idea.

of superior automatic LACH DIAMANT grinding machines – capable of using graphite and/or copper as the respective ideal rotation electrode – are now part of the LACH DIAMANT machine programme.

Individual Presentations Available

Unfortunately, due to the Corona-related cancellation of GrindTec in Augsburg, it will not be possible this year to show all innovations and extras of the LACH DIAMANT EDG-plus-spark-sharpening-machines to a wider audience at a tradeshow – e.g. the »Dia-2200-mini« and the special »contour-profiled« model for superior profiling of metal-bond diamond and CBN grinding wheels. For this reason, LACH DIAMANT invites all interested diamond grinding companies to an individual presentation at our grinding center in Hanau.

Horst Lach