

# Werkzeug Technik

**Technology – System – Logistic**

Technical magazine for cutting tools and measurement in the manufacturing

ISSN Nr. 0997 - 6981  
[www.werkzeug-technik.com](http://www.werkzeug-technik.com)

**23 August 2013**  
**Nr. 134 – Price : 11 €**

**SPECIAL ISSUE  
CUTTING TOOL GUIDE**

# 40 years polycrystalline Diamond – PCD – 1973 - 2013

During this time the pioneer LACH DIAMANT has changed the world of cutting.

It all started with the first availability of the superhard cutting material under the name compax by General Electric at 1973 – Hanover Trade Fair. LACH DIAMANT as the first tool manufacturer introduced polycrystalline PCD cutting tools and demonstrated successfully the turning of aluminium parts with interrupted cut. Up to that time this was considered to be impossible for natural diamonds.

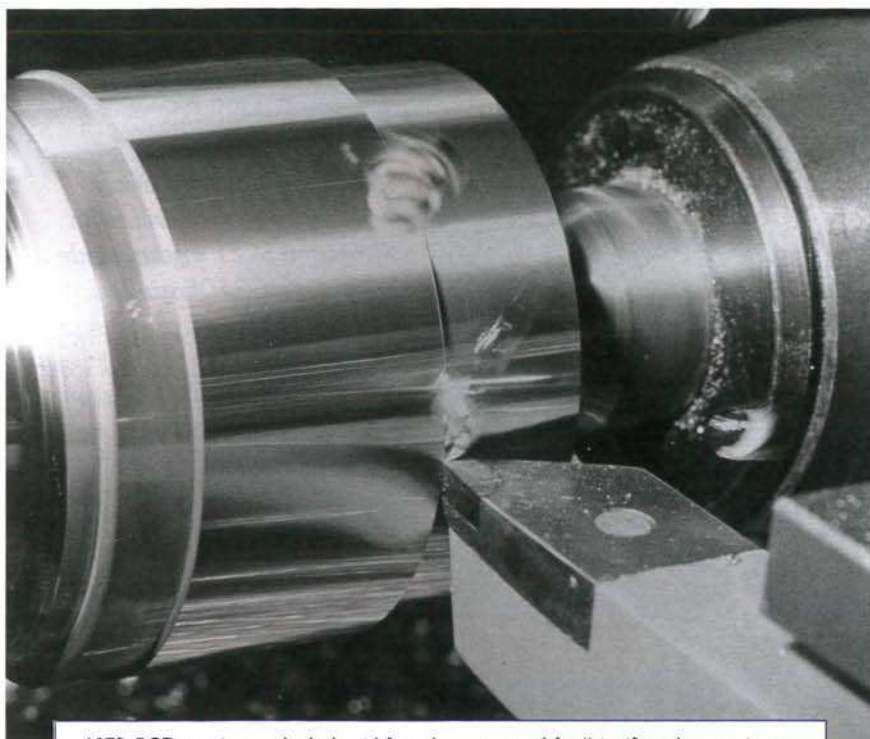
The start of an unique success story:

## 1974 – Hanover Trade Fair

The machining of aluminium, graphite and plastics with PCD tipped tools was demonstrated to an astonished audience.

## 1977 – Productronica, Munich

The first demonstration worldwide of PCD tools brazed directly on the tool body for the machining of GRP and composite materials for milling, cutting, scoring of printed circuit board materials on an Amacher machine.



1973: PCD turning tools drebord first demonstrated for "significantly superior to carbide" turning of aluminium.

## 1978 –

Discovery of the spark erosion/electrical discharge grinding by Horst Lach.

This constituted the ideal medium for the processing and manufacturing of PCD tools.

With this invention the last hurdle was taken for a ground-breaking future of the PCD tools.

## 1979 – LIGNA Hannover

Worldwide surprise: Diamonds cut all woodlike materials and plastics for the woodworking, furniture and flooring industries as well as for the entire fibre composite material industry, which in future should also include the aerospace and windpower industries – were launched by LACH DIAMANT.

## The Eighties

The PCD tools started their triumphant advance and because of the superior tool

lives – 300 to 600 times in comparison with carbide – the development of CNC machines was accelerated.

## 1987 – LIGNA Hanover

LACH DIAMANT shows the rotation spark erosion machines »EDG-plus«, at first developed for its own use, for the service of all PCD tools for the wood and plastics industry.



1974: First milling of aluminium with PCD cutters.



The Eighties: PCD High speed milling cutter with offset cutting edges.



1987: LACH DIAMANT universal sharpening machine Dia-2200-mini.

**1999 –**

LACH DIAMANT presents PCD and PCBN inserts with »chipbreaker« and meantime holds several patents on these laser-manufactured PCD tools.

**2004 –**

LACH DIAMANT received the Hessian Innovation Prize for the development of the PCD-dreborid®-Monoblock milling cutter.

**2006 – AIRTEC, Frankfurt**

The patented PCD multiple end mill – presented for the first time for the machining of GRP, CFRP – wins the Airtec Award.

**2010/2012 – ABM, Stuttgart**

»Cool-Injection« the patented option for (almost) all PCD milling and turning tools makes diamond „even harder“ and captivates due to its efficient and trouble-free chip flow.

The coolant exits directly at the PCD chip surface by way of a cooling channel in the tool carrier after the formation of the chip. The exiting coolant stream hits the „hot“ chip directly underneath, consequently resulting in targeted cooling and controlling the chip removal as requested.

Conventional tools with an inside cooling channel adjacent or in front of the cutting edge reach the chip above after its formation and are only able to fulfill the intended purpose imperfectly.

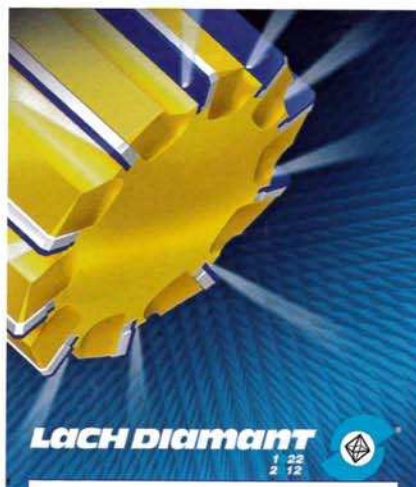
**2013 –**

At the trade shows in 2013, LIGNA, Hanover, EMO, Hanover and Pro-

ductronica, Munich LACH DIAMANT will report continuously about new developments and highlights about LACH DIAMANT tools as well as diamond and CBN grinding wheels. Please refer also to the homepage of LACH DIAMANT [www.lach-diamant.de](http://www.lach-diamant.de)

(13413-11)

2010/12: Cool Injection takes effect on the chip without loss of the PCD cutting edge. Cool Injection cools, lubricates, transports and breaks the chip.



The patented Cool Injection system is shown – PCD dreborid milling cutter.