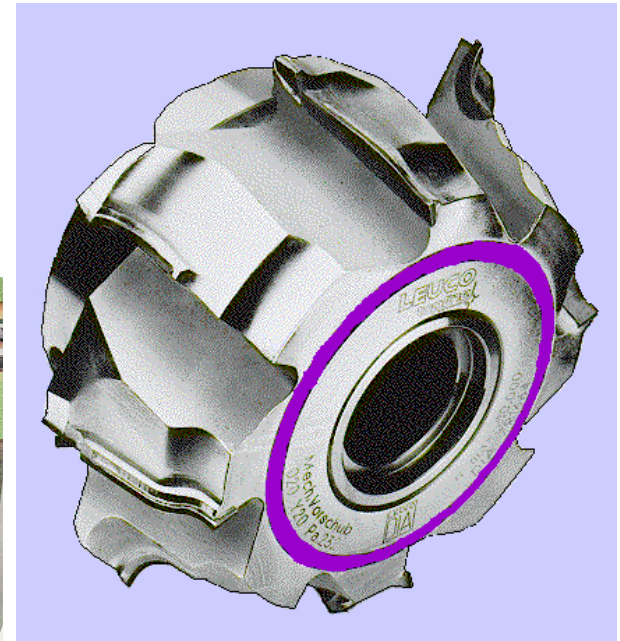
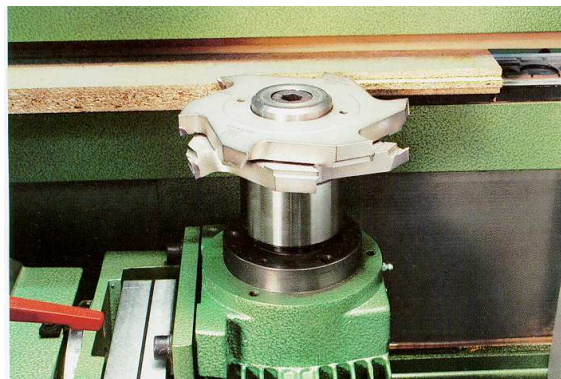




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History of PCD tooling

- ✎ 1953 - first synthetic diamond by ASEA (Sweden)
- ✎ 1957 - first poly crystalline diamond by De Beers (South Africa)
- ✎ 1973 - first development of PCD-tooling for woodworking by LEUCO
- ✎ 1975 - first LIGNA presentation of PCD-tooling by LEUCO
- ✎ 1991 - presentation of DIAMAX disposable tools by LEUCO
- ✎ 1995 - LEUCO introduces LEUCODIA Topline
- ✎ 1999 - set-up of PCD-grinding service in Malaysia
- ✎ today - economic use of PCD-tooling in most applications possible



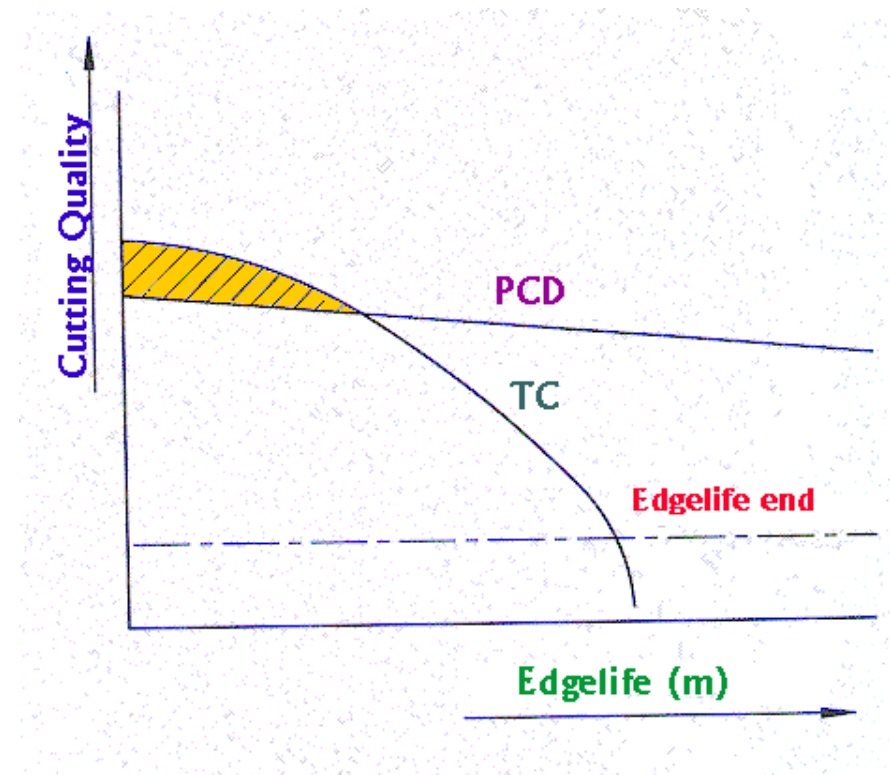
PCD Features

- ✦ lowest tooling cost
- ✦ permanent quality
- ✦ higher cutting speed at lower wear
- ✦ cutting geometry - shear angle versus cutting angle
- ✦ maintenance of PCD tooling
- ✦ Topline - polished face / fine erosion at periphery
- ✦ tooling requirements
 - design according workpiece material
 - low axial and radial run out tolerances
 - proper grain-size selection of PCD-tablets
 - fine balance of tool and system
 - proper selection of teeth quantity

PCD Feature

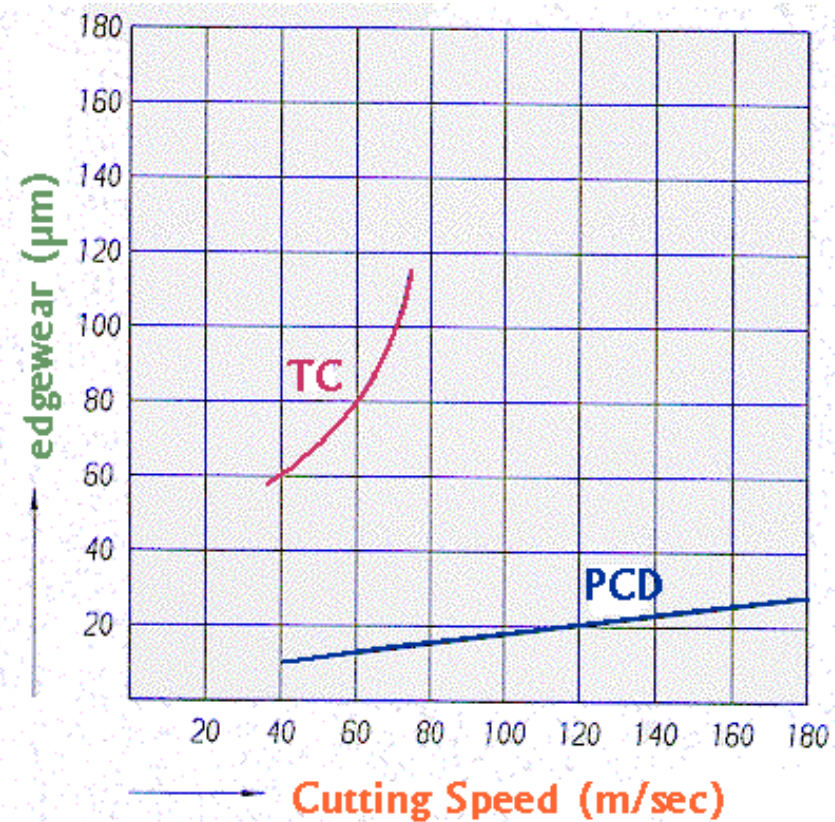
lowest tooling cost

- optimum use of machine capacity
- minimum downtime
- multiple edge-lives compared to TC
- constant cutting quality
- = reduced tooling costs



PCD Feature *cutting speed*

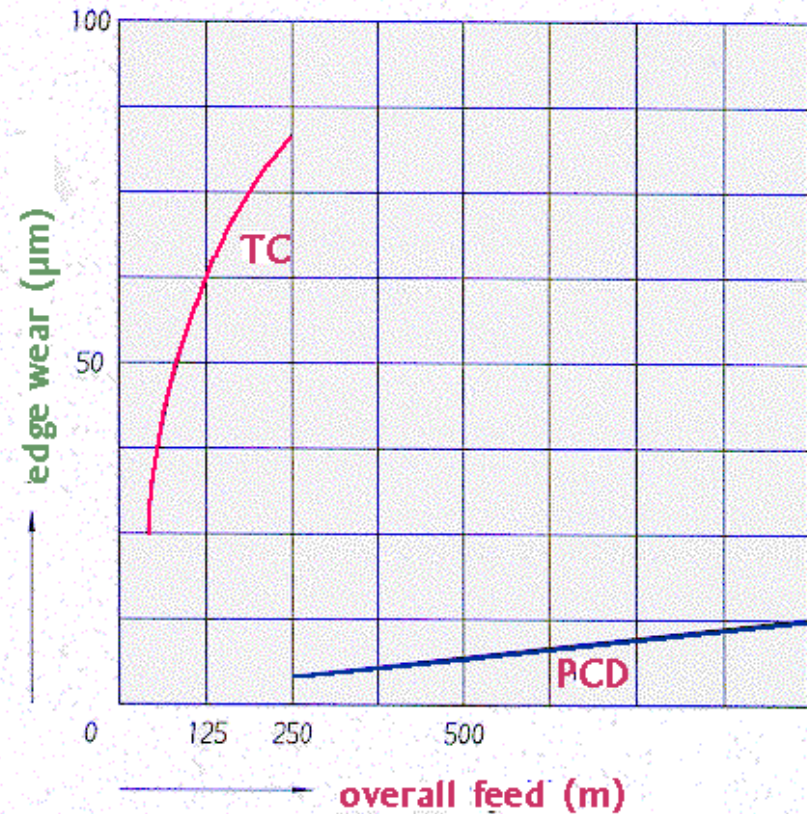
- TC: progressive increase in edge wear with cutting speed
- PCD: static minimum increase in edge wear with cutting speed



PCD Feature

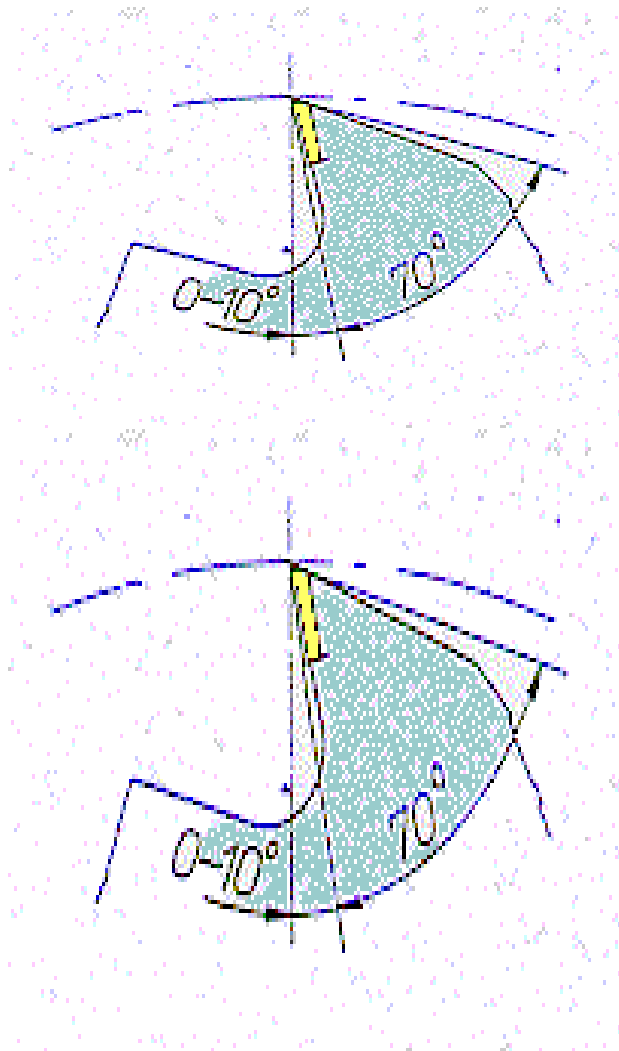
overall feed

- TC: degressive, strong increase in edge wear with cutting distance
- PCD: static minimum increase in edge wear with cutting distance



PCD Feature

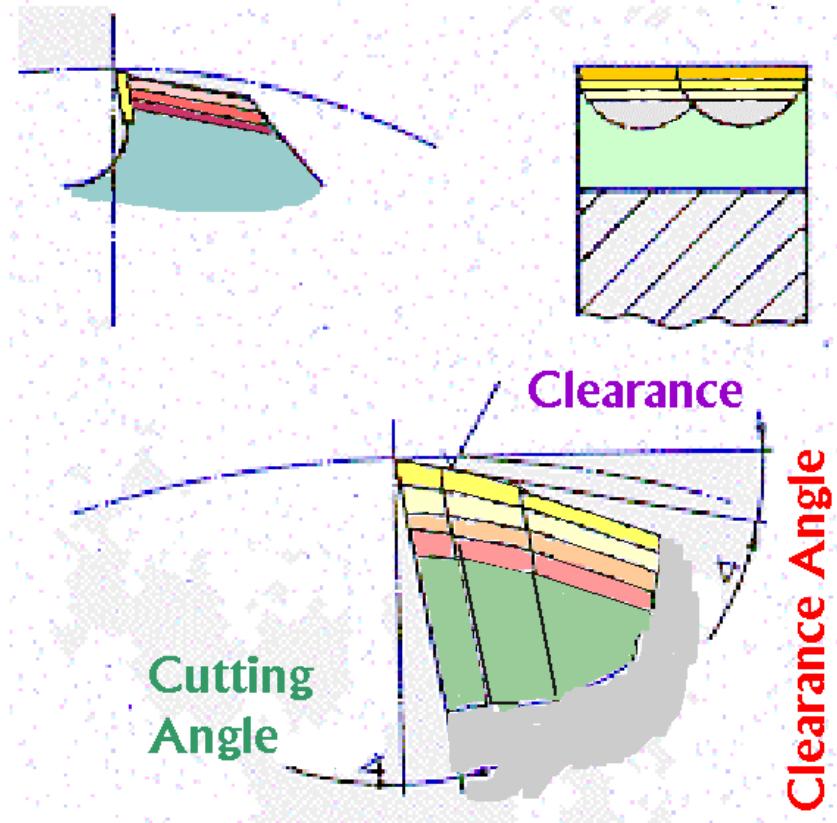
cutting geometry



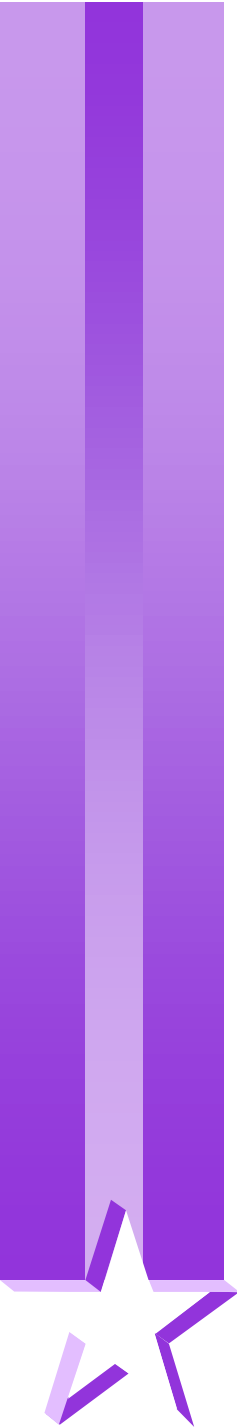
- big hook angle due to hard edge material
- small cutting angle
 - = lower wear
 - = higher power consumption
- small tablets allow bigger shear-angle than with TC
- shear angle compensates smaller cutting angle
- size of tablet determines shear angle

PCD Feature *maintenance*

- ⌘ only sharpening at the clearance
- ⌘ reduced circumference after sharpening
- ⌘ only possible with spark machines



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PCD applications / materials

- ✎ particle board (raw, coated, veneered, HPL / foil laminated)
- ✎ MDF panels (raw, veneered, coated, laminated)
- ✎ solid timber (hard and abrasive)
- ✎ Non-ferrous metals (Aluminium, al-alloys, copper, brass, bronze, zinc, titanium alloy ...)
- ✎ synthetic materials (thermoplastics, duroplastics, Fiberglas, carbonfibres,...)
- ✎ cement board / gypsum board / fiber board ...

PCD applications / sizing

- ✎ jointing
(circumference cut)
 - for constant panel thickness
 - adjustable for full use of PCD-edges
 - with melamine coated boards
 - fine top and bottom edge finish
 - lower noise
 - worse middle layer in particle board
 - cross veneer cannot be sized



PCD applications / sizing

- 🔑 double hogging
 - for flexible board thickness
 - for different laminates, even foil and paper
 - least expensive solution
 - better middle layer
 - higher noise
 - lower edge result
- 🔑 hogging / scoring
 - remarkable shorter cutting life compared to double hogging
 - scoring saw has to be properly adjusted - rebate!



PCD applications



grooving

profiling



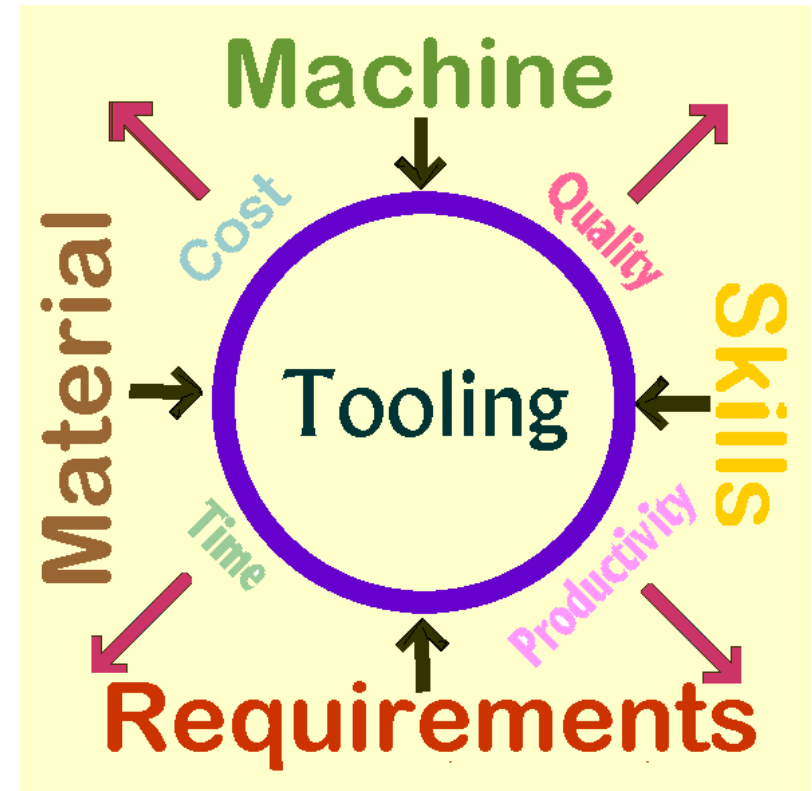
edge trimming

CNC routers



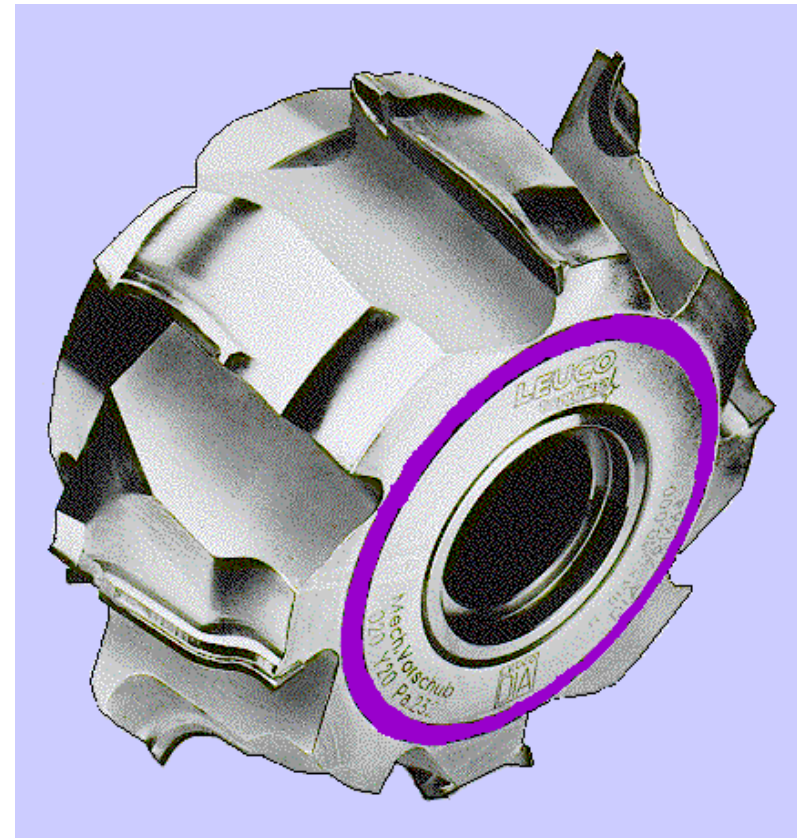
Cost considerations

- ✦ edgelife depends on:
tool,
machine,
workplace,
requirements,
skills
- ✦ edgelife is not directly
transferable
- ✦ cost depends on more
than price



LEUCODIA Topline - the new range

- for solid wood, MDF, plastics, laminated flooring
- finest eroded clearance
- polished edge face
- LEUCO - unique
- edge surface 3-4 times smoother
- double edgelifetime experienced



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