

KORLOY

PCD TOOLS

Industrial tools department



KORLOY

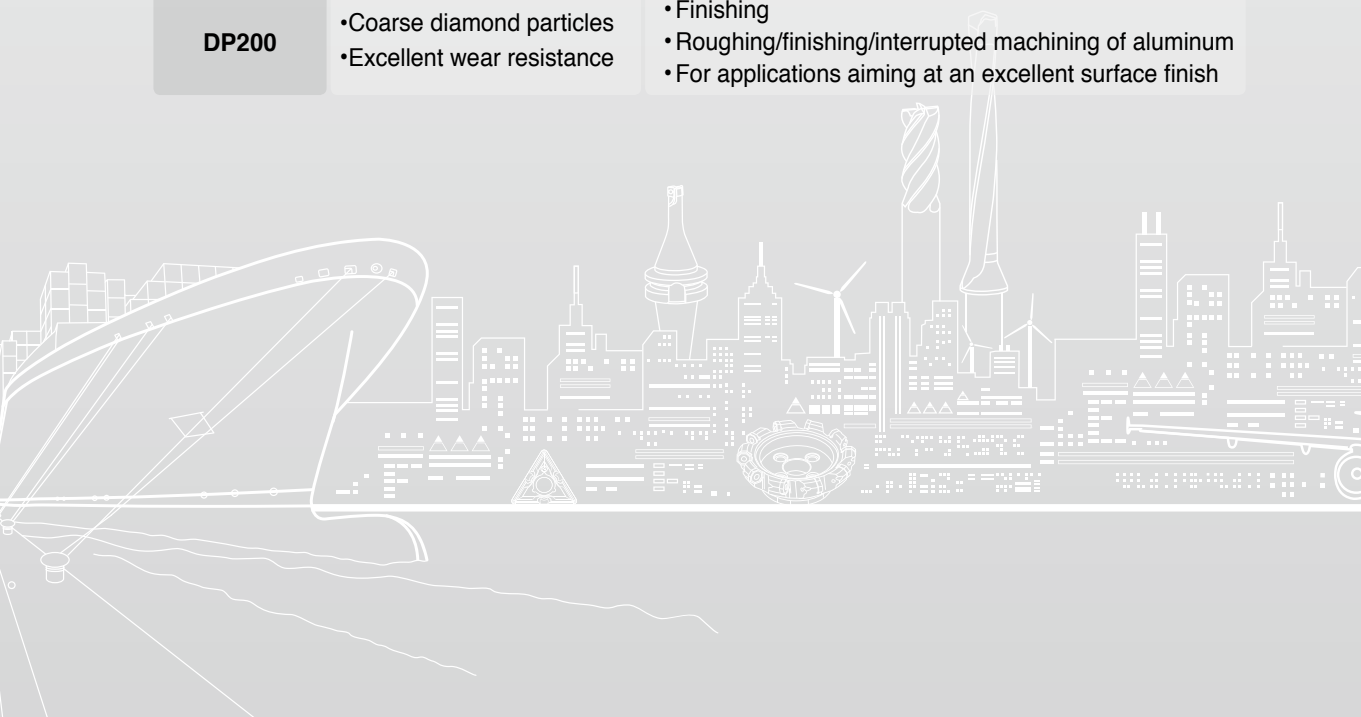
PCD TOOLS

KORLOY PCD tools feature extremely high hardness and outstanding wear resistance thanks to their material technology combining a strict control of diamond crystals size, and a manufacturing process realized at ultra high temperature and pressure levels. KORLOY PCD tools answer the wide demand for machining aluminum alloy and non ferrous metals in the automotive and aerospace industry, while delivering an exceptional increase in productivity and precision.

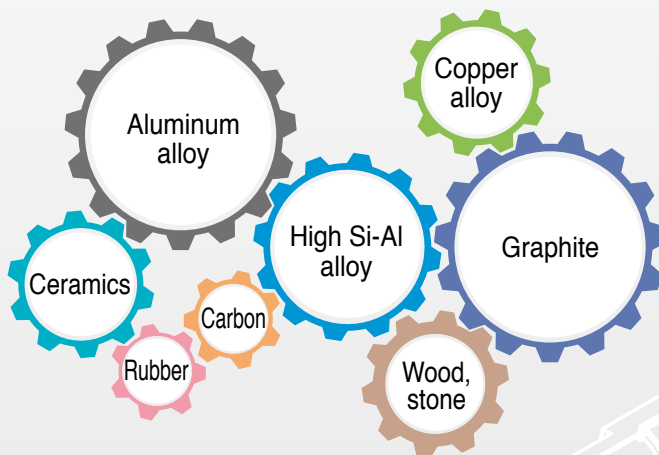


PCD Grade

Grade	Features	Applications
DP90	<ul style="list-style-type: none">• Coarse diamond particles• Excellent wear resistance	<ul style="list-style-type: none">• Roughing• High silicon aluminum• Stones, rocks• Cemented carbide, half-sintered ceramics, pressed figures
DP150	<ul style="list-style-type: none">• Fine diamond particles• Great balance between hardness and toughness	<ul style="list-style-type: none">• General purpose (medium to finishing)• General finishing of non ferrous metals• Roughing cemented carbides, half-sintered ceramics, pressed figures• FRP, hard rubber, carbon
DP200	<ul style="list-style-type: none">• Coarse diamond particles• Excellent wear resistance	<ul style="list-style-type: none">• Finishing• Roughing/finishing/interrupted machining of aluminum• For applications aiming at an excellent surface finish

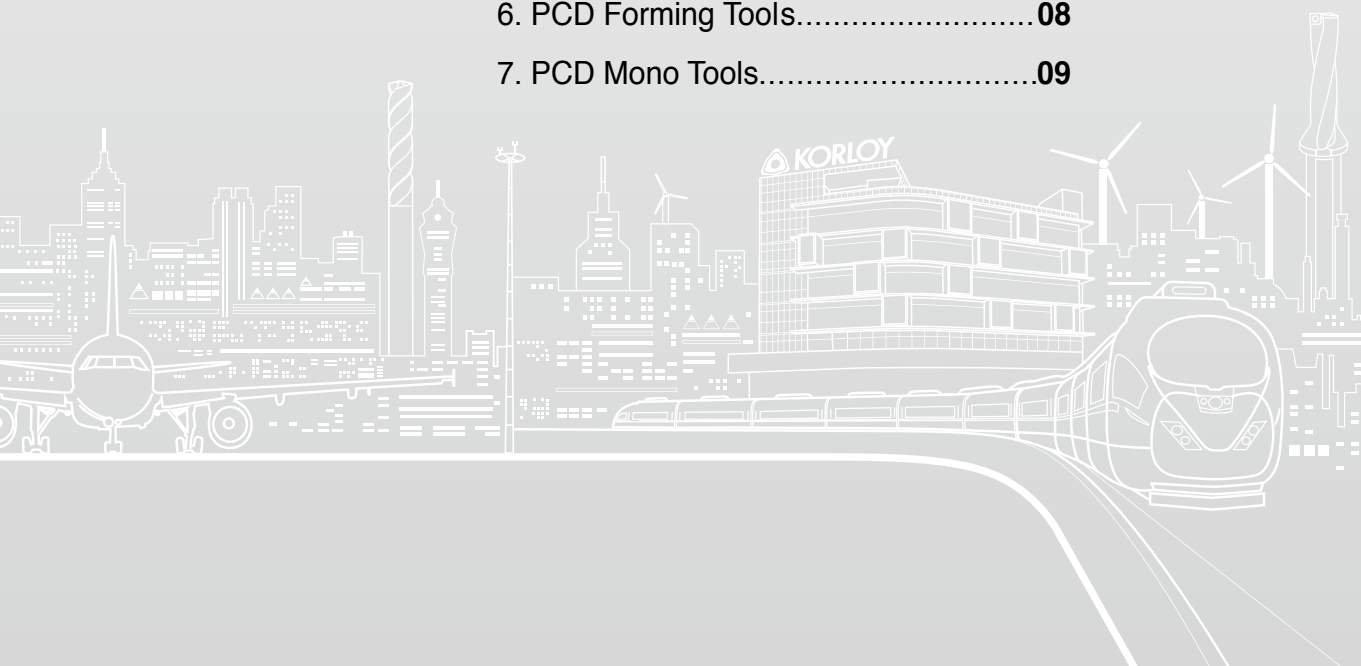


Excellent Performances Versatile Machining Capabilities



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Aero Mill series



Aero Mill mini

- Availability of PCD as well as carbide inserts
- Maximum adjustment range ± 0.1 mm, in $2\mu\text{m}$ as a fine control unit
- Through coolant system
- Simplified cutter structure
- Wide chip pocket area for aluminum alloy finishing and roughing
- Balance level reachable with a balancing screw : G2.5

Aero Mill

- Milling tool for finishing aluminum alloy with an adjustable cutting height
- PCD and carbide inserts available
- Chip cover design for higher durability and better chip evacuation.
- Cutter body made of aluminum alloy for high speed machining
- Balance level reachable with a balancing screw : G2.5

Aero Mill plus

- Blade type simple cutter geometry without a chip cover enabling diverse number of cutting edges
- Direct coolant injection onto the blade increasing tool life
- Simple clamping system with a spanner adjustment system improving fine control ($1\mu\text{m}$) and shortening setting time by 50%, compared to existing 5 edges type cutters
- Exclusive lightweight coolant bolts reducing the cutter weight by 30%, compared to existing $\text{Ø}125$ cutters



Aero Mill series



Specification	Aero Mill Mini	Aero Mill	Aero Mill Plus
Cutter diameter	Ø32 ~ Ø63	Ø80 ~ Ø315	Ø80 ~ Ø315
Applicable inserts	PCD and carbide inserts	PCD and carbide inserts	PCD blades
Structure	Steel body and inserts	Aluminum body and inserts	Aluminum body and blades
Through coolant	Direct injection onto the edge	Central injection	Direct injection onto the edge
Application	Roughing and finishing	Roughing and finishing	Medium cutting to finishing
Max. rpm	26,000 (for Ø32)	16,000 (for Ø80)	16,000 (for Ø80)



Reamer

PCD Reamers

KORLOY's PCD Reamer guarantees excellent surface finish and high accuracy for an economical machining

- Using PCD tools significantly improves tool life (10 times longer than the carbide type)
- Excellent surface finish and high accuracy with small margins of error
- High cutting angle shortens cutting time and increases productivity
- Custom tools provided in various forms according to our customers' cutting environment
- Multi-stage geometry integrated with copying form enables the possibility of machining multiple holes at once
- Ability to produce clean unburned surfaces at cutting speeds over 300m/min
- Stable machining even with water-soluble emulsion type cutting fluid

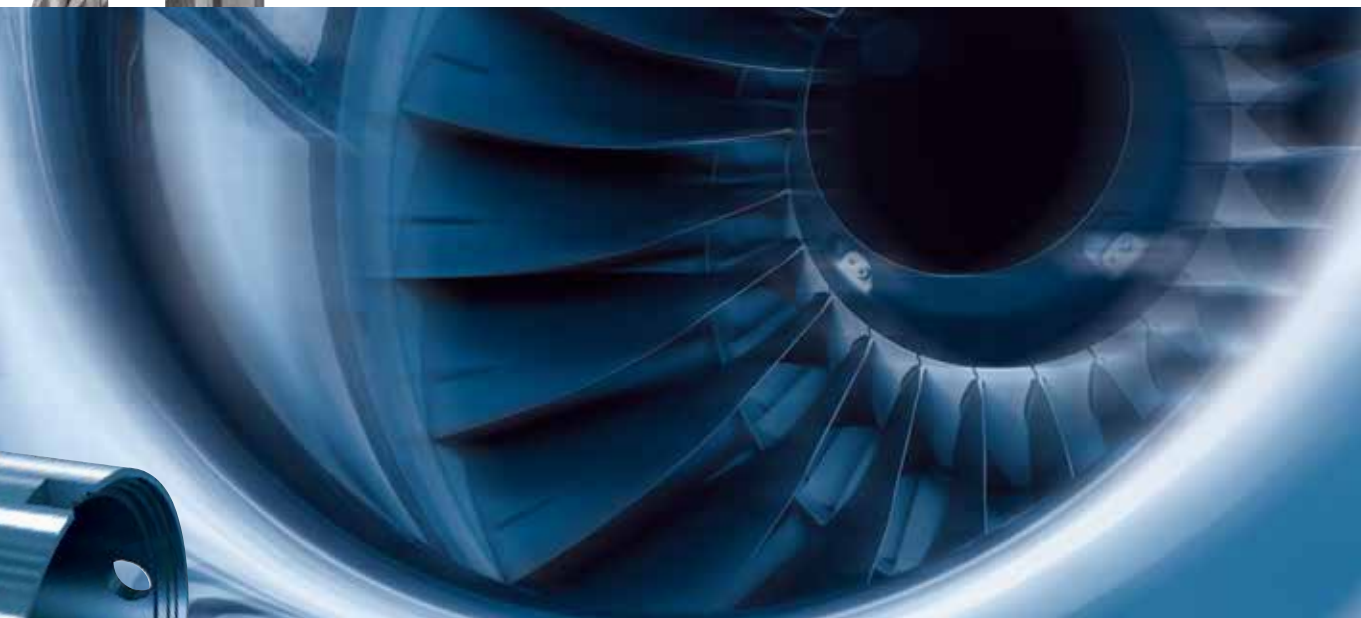
Specifications	PCD Reamer	Carbide Reamer
Cutting speed, vc(m/min)	120	120
Feed rate, fn(mm/rev)	0.2	0.2
Diameter increase(mm/hole)	0.4	0.4
Cutting fluid	Water-soluble	Oil
Surface roughness (Rz)	3 <small>excellent</small>	8
Roundness	5 <small>excellent</small>	10



PCD Drills

KORLOY PCD drill guarantees excellent cutting performance and tool life in aluminum alloy machining with full or partial diamond application on the tip

- Improved surface roughness and hole tolerance
- High precision hole making tool ideally suited for aerospace components or composite materials
- Hole making capability complying with the demanding IT tolerance level 7~8
- Longer tool life and higher productivity
- Stepped drill design for a sharp cut with lower cycle time



PCD Endmills

KORLOY PCD Endmills guarantee long tool life and high productivity by shortening overall cycle time with diamond edge application

- High rake angle insert reducing burr creation for a long time
- High speed and high efficiency machining
- Improved surface finish
- Ideally suited for finishing non ferrous metals and machining reinforced plastics



Boring Tool

PCD Boring Tools

KORLOY PCD Boring Tools enlarges holes with high precision and presents an excellent quality of finishing

- Ideal for machining aluminum alloys
- Able to perform at IT tolerance levels 7~8
- Excellent surface finish
- Perfect machining performance when using high rigidity equipment and a high precision holder



Forming Tool

PCD Forming Tools

KORLOY PCD Forming Tools is the solution to today's increased complexity of workpieces' shapes, while shortening cycle time

- Increased productivity due to long tool life and excellent surface finish
- Shortens cycle time using complex forms combining copying and multi-stage design



PCD Mono Tools

KORLOY PCD Mono Tools are ideal for high precision machining due to its structure with integrated arbors

- Standard through coolant type
- Good performance in roughing as well as finishing
- Balance level : G2.5
- Surface roughness(Rz) : 3~25 μ m





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