



COMMISSIONING DOCUMENT

Installation and application
PCD tool

Subsidiary/dealer

Customer:

Machine type:

Serial no.:

Tool selection

RECOMMENDED MILLING
DEPTHS FOR LINE SPACINGS
OF MILLING DRUM

CLASSIC
STRUCTURE OF AN
ASPHALT ROAD

PCD TOOLS

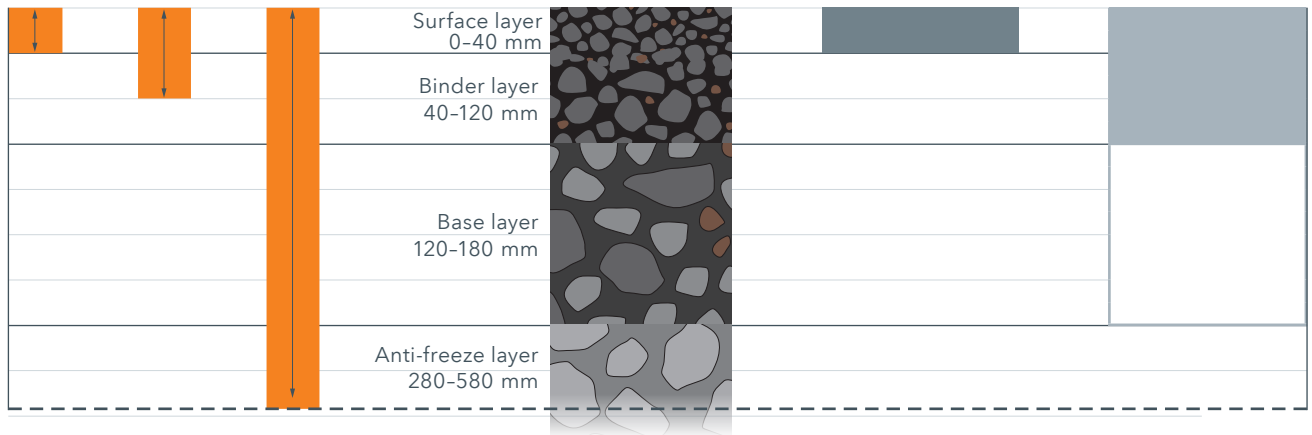
LA5/LA6
LA8/LA10
LA12/LA15/LA18



> WD4-12/HT22



> WD4-15/HT22





Highly recommendable

Recommendable

Conditionally recommendable

Tool selection

Material to be milled	Performance class, machine type	Compact milling machines and large milling machines						
		W 100 F, W 120 F, W 130 F, W 100 CF, W 120 CF, W 130 CF, W 150, W 150 CF, W 1500, W 1900, W 195, W 2000, W 200, W 200 F, W 207 Fi, W 205, W 200 H, W 215, W 210, W 210 Fi, W 210 XP, W 2100, W 220, W 2200, W 250, W 240 CR, W 380 CR						
	Tool designation, Part No.	Line spacing of milling drum						
	HT22	LA5	LA6	LA8	LA10	LA12	LA15	LA18
Asphalt	 WD4-12/HT22 # 2805803	● ●	● ●	●	●	○	○	○
	 WD4-15/HT22 # 2788432	○	○	●	●	● ●	● ●	● ●

● ● *Highly recommendable*

● *Recommendable*

○ *Conditionally recommendable*

Specifications also valid for
all machines in "i" version.

- PCD tools are necessarily not more reliable with regards to breakage than conventional carbide tools. They are built to be more wear resistant through using the hardest of materials (tungsten carbide bolster tip, polycrystalline diamond on the tip). Polycrystalline diamond is many times harder than tungsten carbide tips used on conventional cutter bits. Tungsten carbide bolster is many times harder than hardened steel bodies used on conventional cutter bits. Therefore, PCD tools last many times longer than conventional cutter bits within nominal asphalt cutting conditions outlined above.
- Extremely hard materials are relatively brittle and more prone to breakage than relatively softer materials. Compared to a conventional carbide tool, the PCD tool incorporates a larger amount of tungsten carbide - directly impacting the pavement. Increased tungsten carbide hardness and volume increases the risk of breakage depending on the material milled. Consequently, PCD tools are most effective in shallow, nominal asphalt milling applications. Smaller individual cuts per tool (reduced chip volume) reduces impact forces on the tools. Also, at shallower depths, there is less chance at striking hard objects below the surface, which will likely damage cutting tools of any kind.
- Small PCD tools (WD4-12 tools) are made for fine milling operations (reduced chip volume) and to be installed on milling drums with a tool spacing of LA10 and smaller. Milling drums with larger tool spacing should be equipped with larger PCD tools (WD4-15 tools), as these tools can withstand higher impact loads.
- Hard objects in the asphalt like markers, and large granite/river-rock aggregate may cause fracture of cutting tools regardless of the tool type (PCD or conventional round-shank cutter bits). When milling high performance asphalt (shearing/fracturing large granite/river-rock aggregate, etc.), the risk of cutting tool damage and the fracture rate increases. Anything that would fracture conventional carbide tools will most certainly fracture PCD tools.

Installation



- > Torque of 500 Nm / 370 lb-ft
- > Installation requires striking the tool with a **copper hammer** to ensure proper seating of tool - **no steel hammer**. Not adhering to the installation guidelines (see machine instruction manual) by using the wrong installation tools (striking the PCD tool with a steel hammer) will create micro fractures resulting in tool breakage during milling.
- > Additionally, for PCD tools, do not strike PCD/carbide tip/bolster during installation - rather seat tool by striking steel base of tool just above bolted joint - again with a copper hammer.
- > Retighten the tools after the first day of operation (approx. 10 operational hours) to 500 Nm.
- > Retorque the tools every 500 hours.

Machine transportation

- > Transporting the machine can lead to tool breakage if the milling drum is placed on the tailer deck. Make sure that PCD tools do not contact obstacles, especially steel components, during loading/unloading/transportation. Strictly adhere to transportation rules and guidelines.
- > Recommended: Implement mechanical leg stops that hold drum approximately 20 mm off the deck - again with strict adherence to transportation rules and guidelines. If it is required to rest the cutter drum on wooden blocks during transportation, try to use wooden blocks that contact the drum barrel rather than the PCD tools when possible. If PCD tools must rest on wooden blocks during transportation, understand that PCD tool damage may result. Again, strict adherence to transportation rules and guidelines is of primary importance.



WIRTGEN

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PCD tool

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Machine operation

- > Water cooling reduces the risk of damaging cutting tools (e.g. thermal overload, etc.). This is even more important for PCD tools; ensure enough water supply (up to 100%) when application allows.
- > Lower the machine slowly and evenly into the cut rather than automatically plunging hard into the cut.
- > Adjust the milling drum speed to the machine feed rate and milling depth. The goal is to achieve smooth, consistent operation even if backing down off maximum power is required.
- > Recommended: Run drum as slowly as possible to minimize abrasive cutting tool tip wear, but if there is significant vibration, increase drum speed as required. A high milling drum speed at a constant machine feed rate usually leads to accelerated tool tip wear while a low milling drum speed increase tool body wash and less tool tip wear. For PCD tools a high milling drum speed should be chosen to put the abrasive wear to the highly wear resistant PCD (=polycrystalline diamond) tip. If tip fracture rate increases, it is likely due to milling high performance asphalt pavement with hard, relatively large aggregate. Experiment with different drum speeds to determine what works best in challenging applications.
- > There are no performance guarantees for any type of cutting tool. It is ultimately up to the operator/s to select the correct tools for the job and operate in a way that maximizes production while minimizing operating costs.

PCD Tool Critical Information Disclosure	Name and signature
Customer	
Dealer Representative	
WIRTGEN Representative	