Handling notes for PCD face milling cutters - System Power

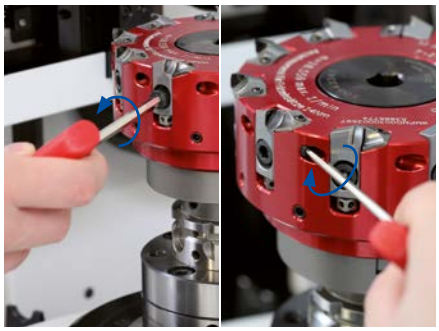
To achieve high removal rates and perfect surface finishes reliably during face milling, it is essential that all the inserts are seated securely in the tool body and run perfectly axially. MAPAL uses a simple setting system on the face milling head system in the PowerMill series.

The insert can be set precisely using the adjusting screw. In combination with the additional locking screw, perfect seating of the milling cartridge in the tool body is guaranteed. Usage under HSC conditions is therefore possible without problems.

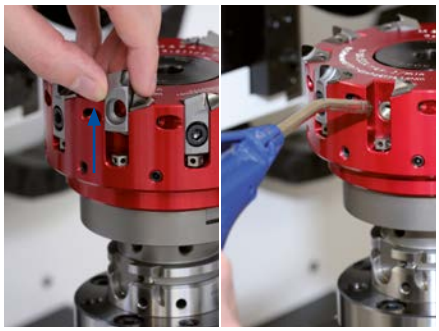
Changing and setting PCD milling cartridges

Requirements:
The milling cutter is clamped on the setting fixture and the milling cutter clamping screw/coolant screw is tightened (see table "Tightening torque for milling cutter clamping screw/coolant screw" on page 303).

Note:
Only for trained personnel.

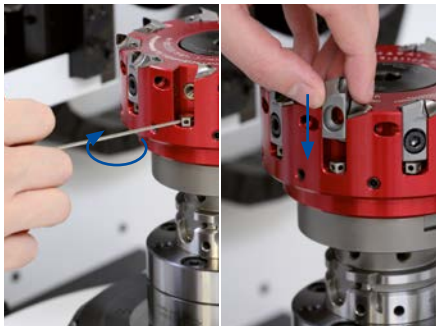


1. Undo and remove the clamping screw for the milling cartridge. Then unscrew the locking screw a few turns.

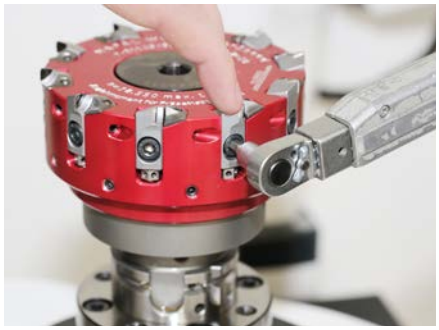


2. Remove the milling cartridge upward out of the seat for the milling cartridge. Then clean the seat for the milling cartridge using compressed air.

3. Check whether the flat side of the locking screw (2) is pointing in the direction of the milling cartridge. If a spherical shape can be seen (1), use your finger to turn this to the flat position.



4. If the adjusting screw is not yet fitted, fit it and screw in to the stop using a hex-wrench. Then fit the new milling cartridge from above.

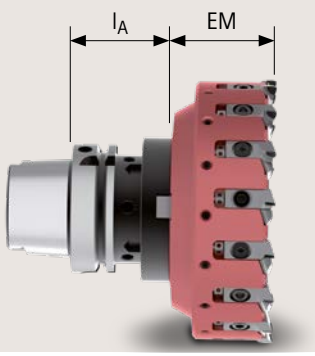


5. Fit the clamping screw* for the milling cartridge and screw in lightly using a hex-wrench. Then carefully press down the milling cartridge using a finger and at the same tighten the clamping screw to 4 Nm using a torque wrench.

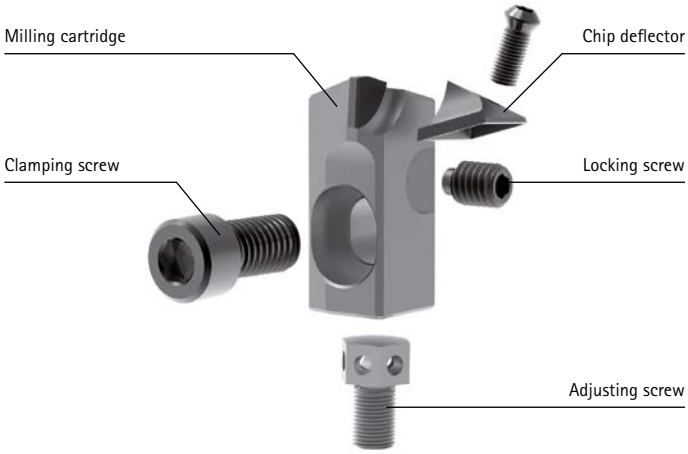
6. Screw in the locking screw clockwise to the stop using a hex-wrench and then screw back half a turn.

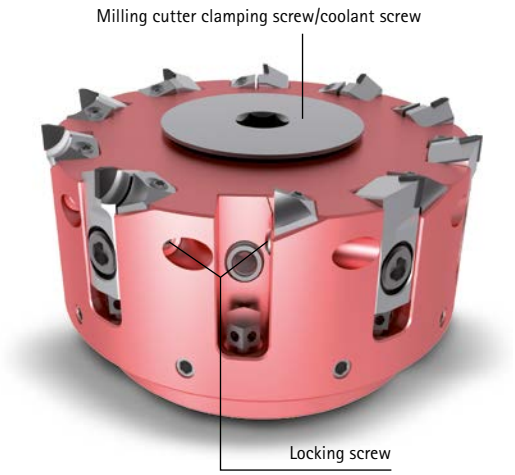
Note:
Clean all cutting edges on the milling cartridges using a cleaning mass to prevent measurement inaccuracies.

Note:
Refer to the related product pages for the setting dimensions. The setting dimension EM relates only to the milling cutter's tool body incl. milling cartridges. If a milling cutter with connection is set, the height of the connection l_A must always be taken into account. In this situation the setting dimension is l_A+EM.



* Please pay attention to the information on page 274 on the usage of the clamping screw.



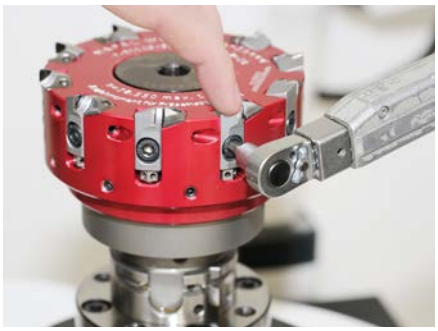


7. Setting using setting fixture (optical)
Using the optical setting fixture, set a milling cartridge -0.01 mm in front of the setting dimension EM:
For this purpose reach the cutting edge using the optical measuring device and using a hex-wrench turn the adjusting screw counter-clockwise until EM = -0.01 mm is reached.
For purely optical setting, repeat this process for the remaining milling cartridges (then continue with step 9).

8. Setting using a dial gauge (measuring plate)
Note:
When rotating the milling cutter, do not leave the measuring probe in contact with the milling cartridge. Aluminium measuring probes are recommended.

During the setting process using a dial gauge, set the EM with the aid of a gauge block. Then set the milling cartridge to 0.01 mm below EM.

For this purpose move the probe to the highest point on the milling cartridge to read the actual dimension. Then turn the milling cartridge upward with the aid of the adjusting screw until EM = -0.01 mm is reached. Repeat this action for all milling cartridges.



9. Note:
The measuring probe must not sit on the milling cartridge during this action.

Tighten the clamping screw for the milling cartridges to 14 Nm using a torque wrench. Then tighten the locking screws to a approx. 2 Nm using a torque wrench.

10. Using the setting fixture, either optically or using a dial gauge, identify the milling cartridge with the highest protruding cutting edge and set to zero. Then set all milling cartridges optically or using a dial gauge in relation to the highest protruding cutting edge:
For this purpose turn clockwise the adjusting screw using a hex-wrench until the zero dimension is reached (tolerance ± 2 µm).

Tightening torque for clamping screws

Clamping screw Order No.	Dimensions	Wrench size	Tightening torque [Nm]
30696522	M6x12	SW 5	14
30696520	M6x13	SW 5	14

Tightening torque for milling cutter clamping screw/coolant screw

Clamping screw Order No.	Milling head diameter [mm]	Dimensions	Wrench size	Tightening torque [Nm]
30543340	50	M10	SW 8	20
30543341	63	M10	SW 10	50
30543342	80	M12	SW 12	80
30543344	100	M16	SW 14	100
30543345	125	M20	SW 14	200
10006594	160	M12	SW 10	70
10007775	200 - 400	M16	SW 14	70
10080371	315 - 400	M20	SW 17	70