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**PATENT BROCHURE**

# MILLING TOOL AND METHOD, IN PARTICULAR FOR MILLING COMPOSITE MATERIALS

Main Technological Area ⟶ Mechanics

Keywords ⟶ milling | cutting | cooling | carbon fiber | powder removal

Working with cutting / milling tools develops heat that can increase the temperature of the material beyond maximum allowable limit with degradation of the properties of the material itself. This invention solves the problem by inserting in the tool an effective air cooling and powder removal system operating from its inside and mainly acting on the cutting surfaces, i.e. on the main heat source.

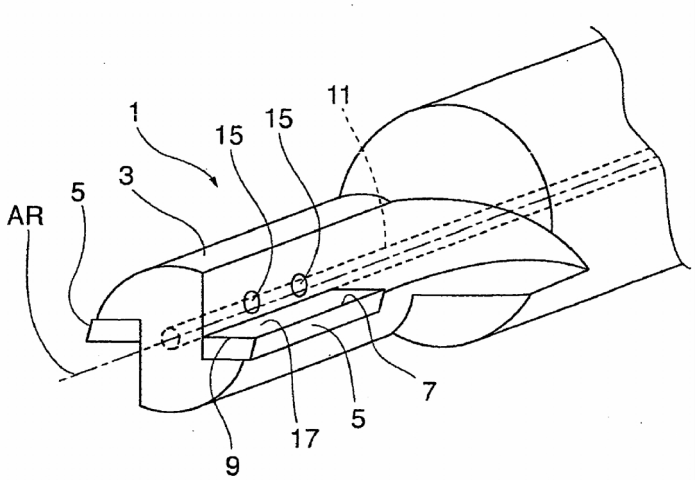


Figure 1 - Milling tool details

## TECHNICAL SPECIFICATIONS

With reference to the Figure 1, the tool (1) is traversed internally by a longitudinal washing channel (11) and two transverse channels (13) through which a jet of compressed air can flow inside the cutting-insert holder (3) and come out of several outlet holes near the cutting faces (17) and cutting inserts (5), in order to quickly remove from cutting edges (7, 9) powders produced during machining. The highly abrasive powders are thus prevented from quickly wearing and deteriorating cutting edges, due to a too long permanence in the spaces between the cutting edges and the surface of the composite material.

## INNOVATION/ADVANTAGES

a) Strong reduction of wear and deterioration of cutting edges due to the presence of highly abrasive powders
b) Improved surface finishing of the cutting line thanks to the quick removal of powders that could otherwise worsen the roughness of the surfaces being cut
c) Effective cooling of the cutting area
d) Greater effectiveness with respect to the solutions (currently being tested by other companies at the time of conception and development of the present invention) operating with air jets from the outside.

## FIELDS OF APPLICATION

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|---|---|
| ***Mechanics*** | Tool machining of highly abrasive composite materials, such as for instance comprising carbon fibres impregnated with epoxy resins. |

PATENT INFORMATION

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