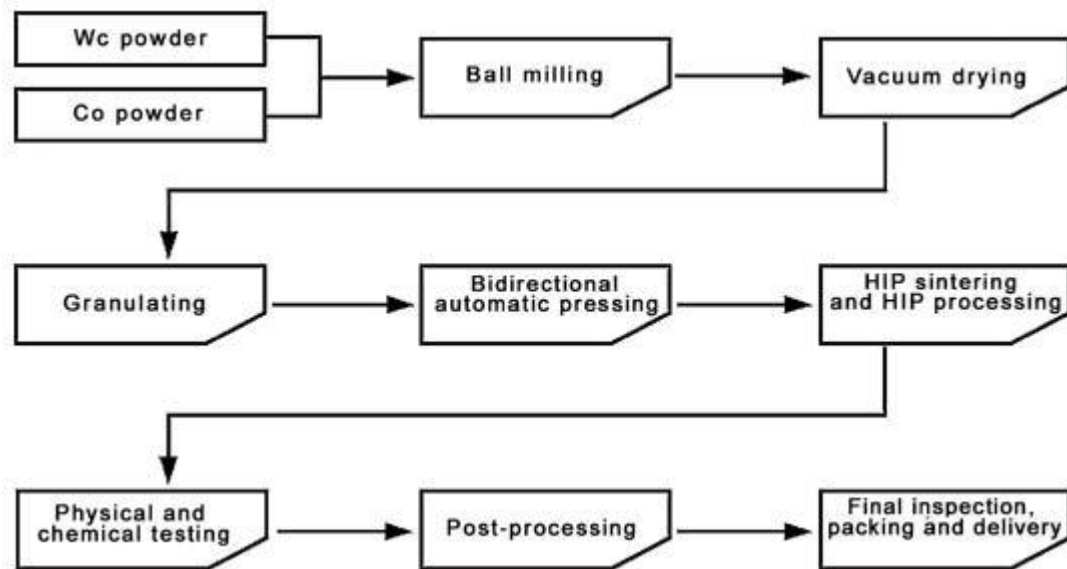


PRODUCTION PROCESS OF CEMENTED CARBIDE BLADE



Today, we would like to introduce to you the production process of the cemented [carbide blade](#):



1. Powder

Tungsten oxide is mixed with carbon and processed into tungsten carbide in a special furnace, which is the main raw material of all cemented carbide. Tungsten carbide is an extremely hard and fragile material that is used as the main component of cemented carbide. Tungsten carbide is mixed with cobalt, which is very important to the properties of cemented carbide. The more cobalt, the better the toughness of cemented carbide; on the contrary, the harder and more wear-resistant. The weight ratio of different components is carried out with the

highest accuracy. The error of a batch of 420 kg of raw materials cannot be greater than 20 grams. Mixing is a precision metallurgical operation. Finally, the mixture is ground into a fine and delicate powder in a large ball mill. The mixture must be spray-dried in order to obtain the correct fluidity.

2. Suppression

First, press with punches and dies in a highly automated CNC controlled press to obtain the basic shape and dimensions. After pressing, the blade looks very similar to the real cemented carbide blade. However, the hardness is far from reaching the standard of cemented carbide blade grade comparison table.

3. Sintering

For hardening, the blade is heat-treated at 1500°C for 15 hours. Through the sintering process, melted cobalt and

tungsten carbide particles are bonded together. The sintering furnace treatment process does two things: first of all, the blade shrinks significantly, and the block shrinkage ratio before sintering must be calculated accurately to obtain the correct tolerance; secondly, the powder mixture is transformed into a new metallic material, which becomes a cemented carbide. Now the blade has reached the expected hardness, but it has not reached the point where it can be delivered. Before proceeding to the next production step, we will carefully check the size of the blade in the coordinate measuring machine.

4. Grinding

Only through diamond grinding can the carbide blade have an accurate shape. The blade is subjected to various grinding processes according to the geometric angle requirements. Most grinders have built-in measurement controls to inspect and measure the blade in several stages.

5. Treatment of Cutting Edge

The cutting edge is processed to obtain the correct shape to achieve the maximum wear resistance required for machining. These blades can be brushed with special brushes with a silicon carbide coating, and the final result must be checked regardless of the processing method. 90% — 95% of all blades have some kind of coating. It is necessary to ensure that there are no foreign particles on the surface of the blade, so as to prevent such particles from adhering to the coating since foreign particles can affect the tool performance.



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