



Basic knowledge of metal cutting tools (2)

Due to high temperature, high pressure, high speed, and parts working in corrosive fluid medium, difficult materials more and more of its application, the level of automation of machining and precision have become increasingly demanding. To accommodate this situation, the development direction of the tool will be the development and application of new tool materials; further development of tools vapor deposition coating technology on high strength and high toughness higher hardness matrix deposition coating, to better address hardness and strength of the tool material contradiction between; further development of the structure may be transferred to the tool bit; improve the manufacturing accuracy of the tool, reducing the difference of product quality, and to achieve optimum use of the tool.

By cutting movement and the corresponding shape of the blade, the tool can be divided into three categories. Common tools, such as turning, planing, milling (not including turning forming, shaping and forming planer milling), boring tools, drills, reamers, reamers and saws; forming tool, the tool cutting edge of such workpiece has been the same or nearly the same cross-section shape, such as forming lathe, planer molding, shaping cutters, broaches, tapered reamer and a variety of thread processing tool; develop into a tool with machining gear generating method tooth surface or similar parts, such as hobs, shaper cutters, shaving cutters, bevel gear and bevel gear planer cutter and so on.

Working part of the tool is part of the generation and processing chips, including the blade, the chips broken off or rolled structural constituent elements, the storage capacity of the chip, or chip removal space, the cutting fluid channels, etc.

Some work part of the tool is cutting parts, such as turning, planing, boring tools and cutters, etc.; some working part of the tool contains a cutting portion and calibrated parts, such as drills, reamers, reamer, pull the inner surface knife and tap and so on. The role of the cutting blade removal is part of the chip, the role of the calibration section is already cutting wiper machined surface and guidance tools.

Construction tools are an integral part of the work, welding and mechanical clamping three. The whole structure is made of the cutting edge on the tool body; welded structures are brazed onto the blade steel cutter body; mechanical clamping structure there are two, one is the knife in the knife holder solid body, another is the brazed head clamped on the tool body. Carbide cutting tools are generally made of welded structures or mechanical clamping structure; ceramic knives are mechanical clamping structure.

Structure of the various parts of the tool and work by clamping components. Clamping part and the working part of the overall structure of the tool are done on the tool body; inserts part of the structure of the work tool (cutter or blade) then inserts mounted on the cutter body. Tool clamping section has a hole and petiole categories. The tool relies on the bore hole in the machine spindle kit or mandrel, with the key or end key axial twisting moment passed, such as a cylindrical cutter, sleeve-type face milling cutter and so on.