

活塞 Piston



在发动机工作时，活塞承受着高温、高压的热负荷和机械负荷。因此活塞作为汽车发动机中传递能量的一个非常重要的构件，对其材料具有特殊的要求：密度小、质量轻、热传导性好、热膨胀系数小；并具有足够的高温强度、耐磨和耐腐蚀性能、尺寸稳定性好。另外还应具有容易制造、成本低廉的特点。

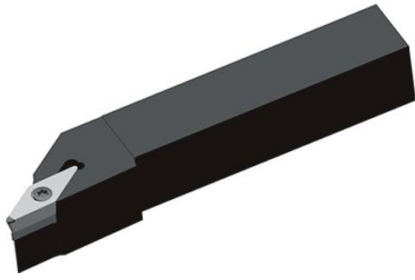
Piston is one of the most important parts of engine. It can bear air pressure drive crankshaft by transmitting from piston pin to connecting rod. When engine is at work, the piston bears high temperature, high pressure, heat load and mechanical load. Piston, as a vital component for transmitting energy of automotive engine, has special requirements on its materials: low density, light weight, good thermal conductivity, and low thermal expansion coefficient; sufficient high temperature strength, wear resistance and corrosion resistance, good dimension stability. Additionally, it also embraced the feature that easy to manufacture and low-cost.

活塞可用铸铁、锻钢、铸钢或铝合金等材料制造。其中，铝合金材料以其质轻、良好热传导性以及较低的热膨胀系数等特点而广泛用于制造活塞。

Piston can be applied in cast iron, forged steel, cast steel and aluminum alloys and other materials. Among them, aluminum alloys has been widely used in piston manufacturing by its merits of light weight, good thermal conductivity, lower coefficient of thermal expansion and other features.

外圆、端面及止口加工 External turning, end face and seam allowance machining



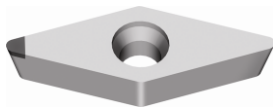


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粗加工刀片 VCGX160408-LC/YD101，铝加工专用槽型，独特的断屑台，大前角及后角使刀片刃口更加锋利，在保证刀片有效断屑的情况下，切削更加轻快。

Insert VCGX160408-LC/YD101 for roughing, special geometry for aluminum machining, unique chipbreaker and large rake angle made edges sharper, while guaranteeing effective chipbreaking, also can achieve soft cutting action.



精加工刀片 VCGW160408/YCD011，PCD 刀具，极好的耐磨性和导热性主要用于有色金属和非金属的高速、高效率和高精密切削加工。

VCGW160408/YCD011, PCD cutting tool, with great wear-resistance and heat-conductivity, is mainly applied in non-ferrous and non-metallic machining with high-speed, high-efficiency and high-precision.

★ 销孔加工 Pinhole machining



钻孔：ZTD 系列浅孔钻，良好的刀片安装角度、优化的内冷结构、坚固的钻体，实现高稳定加工的同时可承受更大的进给。

Drilling : ZTD series U- drill, good angle of installation, optimized internal structure, solid drill body, can realize high-stable machining at greater feed rate.



粗镗：模块式双刃可调粗**镗刀**，齿形接触面保证了最够大的接触面积，大大提高了刀具的刚性，可实现双刃同步调节镗削、非同步调节镗削以及不等高镗削等。

Rough boring: Adjusted and modular rough boring with double-edges, tooth-shaped contact surface ensure large enough contact area, can greatly improve the rigidity of tool, achieve double-edges synchronized adjustment, unsynchronized adjustment and unequal height boring, etc.



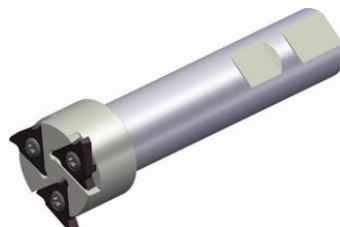
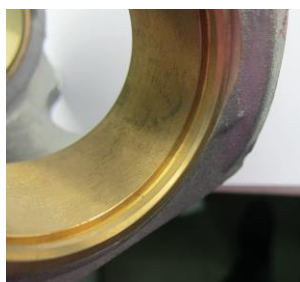
精镗：精密**镗刀**，带中心内冷，提高排屑性能的同时延长刀具使用寿命；每调节刻度环一格相当于移动 0.005mm，即直径方向增大或减小 0.01mm。

Finish boring: With internal coolant supply, improve chip evacuation performance as well as extension tool life. Each unit of scale indicates 0.005mm, which means increase or decrease of 0.01mm.

<http://www.zccct.com>



销孔回油槽加工 Machining for return chute in pin hole



SMP05 三面刃铣刀配合 QC 系列浅槽刀片，可进行槽铣、插铣、清根等加工。特殊结构和工艺设计的刀片具有更高的安装精度和加工精度，同一刀片可适装于内孔、外圆车刀杆及沟槽铣削刀杆。

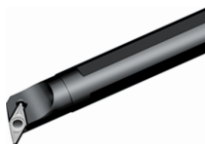
SMP05 side and face milling cutter, combined with QC series shallow slots inserts, can realize slotting, plunge milling, back chipping and other operations. Special structure and process design enable higher mounting precision and machining precision, the same one insert is suitable for assembling in internal, external turning toolholders and groove milling toolholder.

★ 顶端凹槽加工 Top slot machining



专用非标刀具配套 ZILD08-LC 刀片，量身打造的仿形加工工艺，效率高。

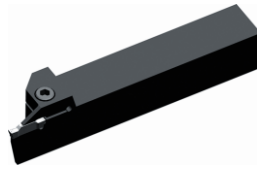
Special tools, mounted with ZILD08-LC insert, tailored profiling process technique and high efficiency.



S20R-SVQCR 刀杆配套 VCGX-LC 刀片，适合铝合金的高精密仿形加工。

S20R-SVQCR toolholder mounted with VCGX-LC insert, suitable for aluminum alloy profiling with high precision.

★ 环槽加工 Ring groove machining



QEFD 刀杆配套 ZTFD-EG 刀片，刀片刃宽可根据工件槽宽而定，刀片制造精度高，可进行精密切槽和车削。

QEFD tool holder combined with ZTFD-EG inserts, edge width can be defined according to workpiece groove width, high manufacturing precision, able to precision grooving and turning.