

Tungsten Carbide has good performance in many aspects, such as strong hardness, anti-friction, heat resistance, lower coefficient of linear expansion, lower coefficient of friction and easy to be matched with other materials. It is most valuable material to mechanical seals products.

Tungsten Carbide mainly used as following:

- 1) **Cobalt based alloy:** Tungsten-Cobalt alloy is the alloy which content major of Tungsten Carbide and cobalt as the bonding agent, it can be used in powder metallurgy. Made by press and sintered process. The anti-friction performance of the cobalt is 15-20 times stronger than the best HSS, and 1-2 times heat spread than HSS, but it is easy to be oxidation, poor anti-corrosive performance. The mainly Chinese code are: YG6, YG8, YG15.
- 2) **Nickel based alloy:** It is the alloy which content major of Tungsten Carbide and nickel as the bonding agent, made by press and sintered process, anti-corrosive, but the intensity only the 70-80% of cobalt based tungsten carbide alloy. Code YWN8.
- 3) **Nickel-chrome based alloy:** good performance of anti-corrosive, strong intensity and hardness, and it has the special characteristic—no magnetism, Chinese Code: W7.
- 4) **Overlay alloy:** Overlay tungsten carbide alloy included cobalt based and chrome based, the cobalt based one mainly used in friction pairs. Other countries called this kind of alloy as "Stellite"; as its special light itself. Because weak in hardness and not distributing balancedly itself, so it is poor in anti-friction, it is seldom used for pump mechanical seal at present, but it is widely used in cartridge seals.
- 5) Furthermore, steel bonded carbide, RC bonded carbide, chrome bonded carbide.