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XIAMEN GOLDEN EGRET SPECIAL ALLOY CO.,LTD.

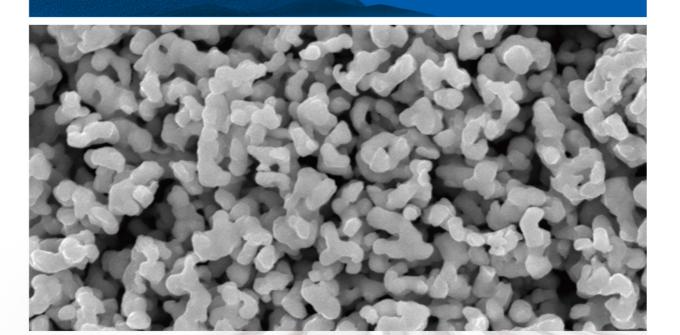
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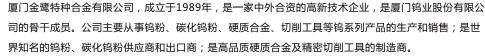
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2016 VERSION

COBALT POWDER





公司简介 About GESAC

界知名的钨粉、碳化钨粉供应商和出口商;是高品质硬质合金及精密切削工具的制造商。 公司拥有一支自强不息、高素质的员工团队,拥有国际一流的工艺技术、生产设备和检测仪器。公司所

发达国家和地区。 公司建立了研发技术中心,独立承担并完成了多项"国家科技支撑计划"项目、"国家科技重大专项"

生产的 "金鹭"牌系列产品,以优良的品质和完善的服务,享誉国内外,客户遍布全球四十多个工业

研究课题,被评为"国家重点高新技术企业"、"先进技术企业"、"出口型企业"。

项目、"国家科技公关计划"项目、"国家火炬计划"项目、"国家重点新产品"开发项目及省市重点

公司秉承诚信为本的运营理念,坚持不断创新,致力于发展成为"设备一流"、"技术一流"、"管理 一流"、"质量一流"、"服务一流"的现代化企业。

Xiamen Golden Egret Special Alloy Co., Ltd. (GESAC) is a Sino-foreign joint venture company established in 1989. It is designated by the State as a high-technologies enterprise.GESAC is the largest subsidiary of the Shanghai Stock Exchange listed

company: Xiamen Tunsten Co.,LTD. It's main products are tungsten metal powder, tungsten carbide powder, cemented carbide, cutting tools and other tungsten related products. GESAC is the largest producer and exporter of tungsten metal powder and tungsten carbide powder in China and also enjoys good reputation in manufacturing high quality cemented carbide and precision cutting tools.

GESAC has a team of talented staff constantly striving to be stronger. GESAC is equipped with the world's most advanced technologies, manufacturing equipment and testing facilities. The "Golden Egret" brand products are renowned for high quality and excellent service. Our clients are spread across more than forty developed countries and regions all over the world.

GESAC owns a national level R&D center, and has undertaken and finished many national and provincial research projects independently, such as National Science and Technology Support Plan project, National major special science and technology

project, National Key Technologies R&D Program, National Torch Program, National Important New Products project etc. GESAC has received numerous awards such as "National Standard High-tech Enterprise", "Enterprise with Advanced Technology" and "Export-oriented Enterprise" from the state government.

GESAC adheres to the philosophy of "sincerity and dependability are our essence" and strives to develop into a modern enterprise with "first class equipment, first class technology, first class management, first class quality and first class service"



产品介绍 Cobalt Powder

钴粉是世界稀缺的战略金属,钴粉是用于制作超硬合金材料(如硬质合金和人造金刚石工具)的关键原料之一,其性能决定了超硬合金材料的粘结性 能、强度和韧性,对超硬合金材料的使用性能至关重要。

含钴工具钢可以显著提高钢的耐磨性和切削性能,含钴50%以上的司太立特硬合金及即使加热到1000℃也不会失去其原有的硬度。航空航天技术中应 用最广泛的合金之一是钴基合金。钴基合金可用于制造高效率的高温发动机。钴在磁性材料上的优势也很明显,是磁化一次就能保持磁性的少数金属 之一,在电镀、玻璃、染色、医药医疗等方面也有广泛的应用。

As the world's scarce strategic metal, cobalt powder is one of the key raw material for the production of cemented carbide materials(such as cemented carbide and synthetic diamond tools), and tis performance determines the bonding properties, strength and toughness of super-hard alloy materials, and is essential to its performance.

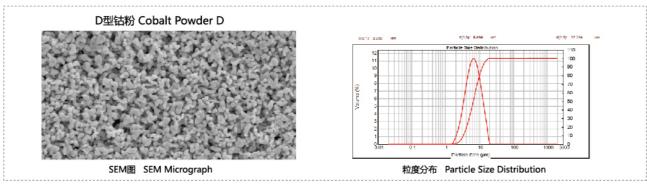
Cobalt-containing tool steel can remarkably improve the wear resistance and machinability of steel. More than 50%cobalt contained Special Carbide Stellite will not lose its hardness even when it is heated to 1000°C. Cobalt-based alloy is one of the most widely used alloys of aerospace technology. It can be used for manufacturing high-efficiency high-temperature wearing engine. Cobalt is also advanced as magnetic material; it is one of the few metals which are able to keep magnetic when magnetized once, and is widely used in electroplating, glass, dyeing, pharmaceutical and medical aspects.

金鹭钴粉 GESAC's Cobalt Powder

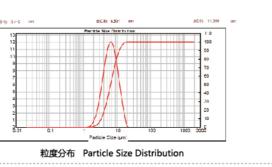
- · 完整的钴集成供应和转化链
- ·实力雄厚的粉末研发队伍,可根据客户需要设计、生产不同性能要求的钴粉
- ·产品纯度高, 粒度分布集中, 粉末颗粒发育完善, 分散性好
- ·产品深受客户好评,主要销售于日韩、欧美等知名硬质合金和金刚石工具生产厂家
- · A fully integrated supply and transformation chain for Cobalt
- Powerful R&D team offers customized products according to requirements
- · A quality of high purity, concentrated particle size distribution, development improved powder particles and good dispersion
- · Mainly sold to Japan, Korean, European and American well-known manufacturers of cemented carbide an diamond tools



钴粉系列 Coblat Powder Series







SEM图 SEM Micrograph

硬质合金用钴粉 Cobalt Powder for Cemented Carbides

- ·粉末颗粒球形度高,粒度分布集中
- 微观结构均一,晶格完善
- · 纯度高, 质量稳定性好
- 该系列钴粉可使硬质合金具有更高的硬度、抗弯强度和断裂韧性, 更低的钴池概率
- High purity of spherical powder particles and concentrated particle size distribution
- Uniform microstructure and perfect lattice
- · High purity powder with good stability
- · Cemented carbide produced with this series of cobalt powder allows a higher hardness, bending strength and fracture toughness, and lower probability of cobalt pool

形貌 Morphology	球形 Spherical							枝状 Cylindrical		
牌号Grade	FCo004B	FCo004D	FCo008D	FCo012D	FCo015D	FCo020D	FCo030D	FCo008C	FCo015C	
Fsss(µ)	< 0.85	< 0.85	0.70~1.00	1.00~1.40	1.40~1.80	1.80~2.20	> 2.20	0.70~1.20	1.20~1.60	
松比 Loose Density (g/cm3)	> 0.30	> 0.30	> 0.40	> 0.60	> 0.70	> 0.80	> 1.00	> 0.25	> 0.50	
BET(m2/g)	1.80~2.20	1.80~2.20	/	/	/	/	/	/	/	
Co(%)	≥99.90	≥99.90	≥99.95	≥99.96	≥99.96	≥99.96	≥99.96	≥99.95	≥99.95	
O(%)	< 0.7000	< 0.7000	< 0.6000	< 0.5000	< 0.4000	< 0.3000	< 0.3000	< 0.6000	< 0.4000	
C(%)	< 0.0400	< 0.0400	< 0.0400	< 0.0400	< 0.0300	< 0.0300	< 0.0300	< 0.0400	< 0.0300	
S(%)	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030	

杂质 Impurities	Al	Si	Fe	Pb	Mg	Mn	Ni	Ca	Cu	Na	Zn
<ppm< td=""><td>10</td><td>25</td><td>25</td><td>10</td><td>10</td><td>10</td><td>30</td><td>25</td><td>10</td><td>30</td><td>30</td></ppm<>	10	25	25	10	10	10	30	25	10	30	30
典型值 Typical Value	5	15	15	5	5	5	15	10	5	15	15

金刚石工具用钴粉 Cobalt Powder for Diamond Tools

·粉末呈树枝状,纯度高

· 弹性模量高,延展性好、成型性好

・耐磨匹配性强

· 烧结硬度高,断裂韧性大,密度高

・该系列钴粉可使金刚石胎体抗弯强度高、韧性好、自锐性好、把持力高

• The presentation of cylindrical with high purity

· High elastic modulus and excellent ductility and formability

Superior wear matching

· Good sintering hardness, fracture toughness and high density

· Diamond tool produced with this series of cobalt powder allows high carcass bending strength, good toughness, good self-shapening and high gripping force

颗粒级别 Grain Size	超细颗粒 Ultra-fine		^{预粒} ne	中粗颗粒 Coarse			
牌号Grade	FCo008C	FCo012C	FCo015C	FCo020C	FCo030C		
Fsss(µ)	0.70~1.00	1.00~1.40	1.40~1.80	1.80~2.20	> 2.20		
松比Loose Density (g/cm3)	> 0.25	> 0.50	> 0.50	> 0.50	> 0.60		
Co(%)	≥99.95	≥99.95	≥99.95	≥99.95	≥99.95		
O(%)	< 0.6000	< 0.4000	< 0.4000	< 0.4000	< 0.3000		
C(%)	< 0.0400	< 0.0300	< 0.0300	< 0.0300	< 0.0300		
S(%)	< 0.0030	< 0.0030	< 0.0030	< 0.0030	< 0.0030		

杂质 Impurities	Al	Si	Fe	Pb	Mg	Mn	Ni	Ca	Cu	Na	Zn
<ppm< td=""><td>10</td><td>25</td><td>25</td><td>10</td><td>10</td><td>10</td><td>30</td><td>25</td><td>10</td><td>30</td><td>30</td></ppm<>	10	25	25	10	10	10	30	25	10	30	30
典型值 Typical Value	5	15	15	5	5	5	15	10	5	15	15

质量保障 Quality Guarantee

获中国质量认证中心和DNV ISO9001:2000质量保证体系认证。通过ISO14001:2004环境管理体系、OHSAS180001:2007职业健康安全管理体 系认证。拥有ICP-OES、SEM、XRD等先进的质量检测设备和健全的品质保障体系。提供高效、全面的客户服务。

Certified by China Quality Certification Center and DNV ISO9001: 2000 quality assurance system. Obtaining the certification by ISO14001: 2004 Environmental Management System and OHSAS180001: 2007 Occupational Health and Safety Management System. With ICP-OES、SEM、XRD and other advanced quality testing equipment. Providing a complete quality assurance system and competitive customer service.

The Relationship of Mechanical Property and Sintering Temperature

各牌号力学性能与烧结温度的关系

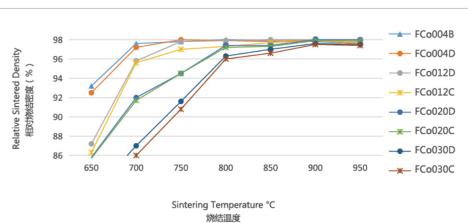


Figure 1 各牌号相对密度随烧结温度的变化趋势

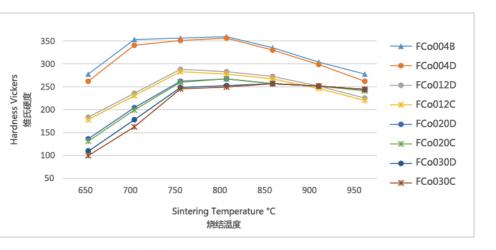


Figure 2 各牌号维氏硬度随烧结温度的变化趋势 The Change of Hardness Vickers with Sintering Temperature

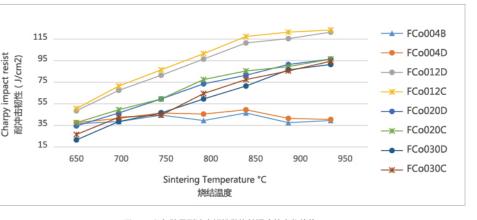


Figure 3 各牌号耐冲击韧性随烧结温度的变化趋势 The Change of Charpy impact Resistance with Sintering Temperature