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NATIONAL\* 美国国民机器公司 MACHINERY 华南地区总代理

# 例新超硬 CHUANGXIN CARBIDE DIES CXDIES GUANGDONG CO..LTD 创新超硬模具(广东)有限公司

#### 全球冷锻模具及配件供应商 包含设计、制造、分析改良

WORLD-WIDE SUPPLIER FOR COLD FORMING Designing, Manufacturing and Improving





公司介绍手册 COMPANY PROFILE

## INTRODUCTION 公司概述



# **SINCE 2005**

「PASS ON THE CRAFTSMANSHIP ADVANCING BY TECHNOLOGY.」



创新超硬模具 (广东) 有限公司 始于 2005年,总部位于佛山市三 水区, 厂房总面积 3000 m<sup>2</sup>, 在精密冷锻模具设计及制造领域深耕近 20年,客户群体遍布航空、汽车、精密医疗、电子等专业领域。产品获 得全球紧固件制造商广泛认可。在 2019 年与美国百年企业 NATIONAL MACHINERY (国民机器公司) 达成战略合作,成为其 中国华南地区独家代理。









Since 2005 and headquartered in Sanshui District, Foshan City, CHUANGXIN CARBIDE DIES (Guangdong) Co., Ltd. has nearly two decades of experience in designing and manufacturing cold forming tools for clients in the aviation, automotive, medical, and electronics, etc. Ours products have earned reputation from global fastener manufacturers. In 2019, we secured a strategic partnership with the centenarian American company, National Machinery, to serve as their exclusive agent in South China.

#### 倒新超硬 创新超硬模具(广东)有限公司 CXDIES

CHUANG'XIN CARBIDE DIES(GUANGDONG)Co.,Ltd

🔼 司秉承"技术创新"的理念,基于高度定制化的 ERP、MES、PLM、CMMS等数字化平台,实现可追 溯的制造管理。在高精度、复杂形状、高要求、高难度 模具制作方面具有优势,多年来深得客户信赖。

Ours commitment to "ADVANCING BY TECHNOLOGY" is realized through highly customized digital platforms, such as ERP, MES, PLM, and CMMS, enabling traceable manufacturing management. Excels in precision, complex, high-demand, and high-difficulty mold manufacturing, earning customers' trust over the years.

> 2022 FOSHAN, RELOCATION 迁址及更名

"创新超硬模具(广东)有限公司"

2014 ISO9001 CERTIFICATED 取得"ISO9001"国际认证

2019 CO-OPERATION

成为美国"NATIONAL MACHINERY" 中国华南地区独家代理

2021 CERTIFICATED 入选\*\*专精特新\*\*企业

2005 SHENZHEN. FOUNDED

"深圳市创新超硬模具有限公司"成立



2017 COMPANY RENAMED

更名"创新超硬模具(深圳)有限公司"

# BUSINESS 业务介绍



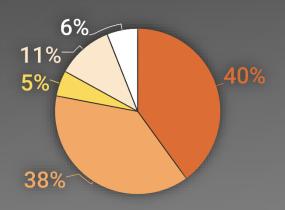
#### **INTERNATIONAL**

#### 客户分布 PRESENCE

作为中国前沿的冷锻模具供应商,我们主要为国内客户提供解决方案,一直以来品质及服务受到客户的信赖与认可。 同时,我们也希望放眼全球,寻求更多的挑战与机遇,为客户提供更好的产品与服务而不断努力。

As a leading supplier of cold forging dies in China, we focus on providing solutions for domestic customers and have earned their trust and recognition for our quality and service. At the same time, we also aim to explore global markets, seek more challenges and opportunities, and strive to continuously improve our products and services to better serve our customers.





- 欧美 WESTERN
- 日韩 JAPAN & SOUTH KOREA
- 东南亚 SOUTHEAST ASIA
- 中国内资 CHINA (DOMESTIC)
- 中国日资 CHINA BRANCH of JAPANESE

精准、稳定、耐用,以创新技术驱动发展。

#### **Our Product is designed for**

Aviation, Vehicle, Electronic-Components, Medical-Equipment ... and more

#### 我们致力为高端制造提供产品

航空航天、汽车、电气元件、 医疗设备 ... 及更多可能

### PRODUCTS 产品概述

Proficient in solving complex geometries and demanding precision requirements.

我们善于解决复杂的几何结构和苛刻的精度要求。





例新起硬 CHUANGXIN CARBIDE DIES CXDIES GUANGDONG CO.,LTD

Providing Comprehensive Solution for Cold Forming 为冷锻加工提供全套解决方案

#### **CAVITY SCHEMATIC**



#### 型腔示意图



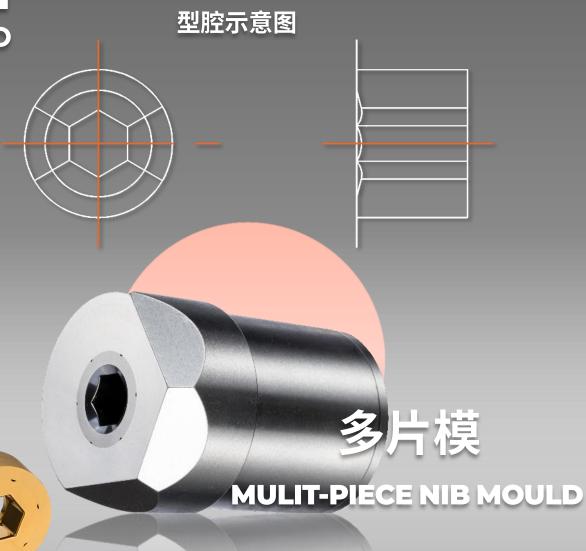
强束模的型腔结构,会使材料在通过时径向收束。由于变形量较大且一般进行多次收束, 在段差处形容易成较高应力。在保证包合力的情况下,过高的应力会影响精度及寿命。

我们拥有丰富的经验,通过数据分析束比合理性,选用合适的硬质合金,和优化过渡角部等方法,确保产品达到良好的<u>精度及寿命。</u>

As the scenario shown in the figure, radial contraction was created when the material passing through. Due to the deformation and repeated contraction, extremely high-stress formed at the segment gap. We have extensive experience for such scenario. With the methods like analyzing before manufacturing, selecting suitable carbide alloy, optimizing the transition angle, we ensure the good accuracy and life of the product.

# O2 SENARIO

#### **CAVITY SCHEMATIC**



多片模的套片被分为相等的几部分,通常为四等分或者六等分。这样的设计有助于产品 在工作时将应力顺利释放。虽然制作成本较高,但从质量及寿命角度考虑,这样的设计 在很多情况下相比于一体式更具有优势。

我们拥有丰富的制作经验,可以确保这样的多片模的各部分件之间的配合严丝合缝。

Multi-piece nib moulds is typically divided into equal parts, often into quarters or sixths. This design helps to smoothly release stress during product working. Although the cost is higher, from a quality and lifespan perspective, this design has many advantages over integral one

We have extensive manufacturing experience to ensure seamless assembly of such mould



我们可制作由 CONTI Fastener AG 公司授权的专利三角紧固件产品系列模具。以具有代表性的 TAPITE 2000 系列举例,其产品具有卓越的抗震性、高传递扭矩,方便装配等优点。

但由于轮廓曲线复杂,对模具制作精度要求较高。我们会通过优良的工艺及设备,确保 高精度及高效率。

We are able to manufacture the mould for CONTI Fastener AG's patent tools under its authorized licensee. Taking the representative TAPITE 2000 series as an example, it features excellent seismic resistance, high transmission torque, and easy assembly.

The contour curve of the mould is complex, requiring high precision in its production. We ensure it through excellent technology and equipment.

94 SENARIO

#### **CAVITY SCHEMATIC**

型腔示意图



花齿轴等作为重要的传动部件,常作为汽车变速箱的重要组成部分,对精度及耐久度有着非常高的要求。但花齿的形状相对复杂,传统加工工艺制作起来较为繁琐。

通过冷锻技术制作花齿,虽然模具制作成本较大,但可以确保稳定的高精度和高耐久 度,同时也大幅削减了产品的加工成本。

As an important transmission component, spline shafts are often used as vital parts of automotive transmissions and require high precision and durability. However, the complex shape of splines makes traditional machining methods tedious.

By utilizing cold forming to manufacture splines, although the cost of moulds production is high, stable high precision and high durability can be ensured, while greatly reducing the production cost of the product.

#### **VARIOUS GEOMETRIES**





我们采用创新的工艺和经验丰富的设计人员,对各种冷锻模具进行精准调整,以实现复杂几何形状腔体和头型的高精度加工。

同时,我们还配备了高精度测量仪器,确保各种复杂尺寸能够达到客户满意的效果。

We utilize advanced techniques and a team of experienced designers to finely tune various cold forming moulds, enabling the high-precision processing of complex geometric shapes and header types. Additionally, we are equipped with state-of-the-art measuring instruments to ensure that all complex dimensions meet our customers' exacting standards.

# 06 SENARIO

#### **VARIOUS STRUCTURE**



开合模主要用于"两头膨胀"类的紧固件产品的生产制造,避免了传统制造中繁琐的 车削、合模等处理工序,同时确保了高效的生产以及良好的精度稳定性。

我们的生产工艺可确保开合模每片的一致性,并确保模具在工作时不会在紧固件产品 上留下线痕。

OPEN-DIE is mainly used in the production of "Two-header expansion" type fastener, avoiding the cumbersome turning and closing processes in traditional manufacturing while ensuring efficient production and good precision stability

Our excellent production process can ensure the consistency of each piece of the open-die, and ensure that the moulds will not leave any line marks on the fastener products.

#### **VARIOUS GEOMETRIES**





我们也提供和冷锻模具相关配件,包括不同用途的钨钢冲棒,线材剪刀,夹子等。结合 我们的工艺,即使是一些精度要求较高的复杂配件,我们也能够顺利制作。

同时,我们的制作交期也有保证,在紧急情况时可配合客优先提供产品。

We offer accessories related to cold forming, include carbide pins, cutting knife, holder and more, designed for different purposes. With our advanced technology, even complex contours can achieve high tolerances. Additionally, we are able to respond quickly to urgent customer situations and provide products that meet their needs.

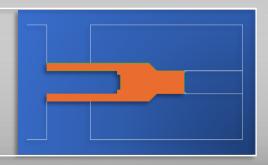
### PRINCIPLES 冷锻成型原理

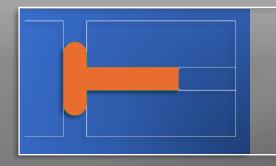
冷锻: 是一种高速锻压成型工艺,通过将金属线材精确的剪切为一定长度,并将其置于一系列的冲模和主模型腔内,进行挤压变形为特定的形状。在挤压过程中,金属材料所受的力必须在其抗拉强度范围内,否则将导致金属破裂(切边&冲孔除外)。一些经典的成型案例如下图所示:

Cold forming is a high-speed forging process that involves the precise shearing of metal disk stock and subjecting it to deformation by extrusion through a series of punching dies and main mold cavities to create a specific shape. In this process, the force applied to the metal material must be within its tensile strength range, otherwise it will cause the metal to fracture. although cutting and punching are exceptions.



BACKWARD EXTRUSION 反挤压





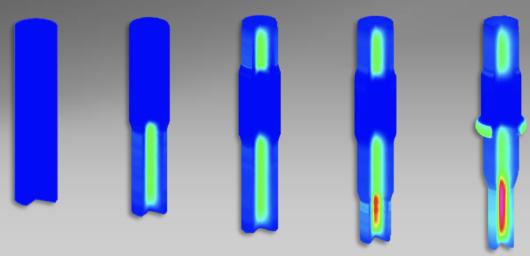
UPSET 镦粗

冷成型技术在制造过程中有多个优势,比如可以快速生产、形状整洁、尺寸精确、表面光滑、节省原材料和减少废料、提高机械性能等等。因此,冷成型技术可以作为替代热锻、铸造、粉末冶金、机械加工、焊接、冲压、以及加固塑料/复合材料的一种有效工艺。

Cold forming offers several benefits in the manufacturing process, such as fast production, precise dimensions, smooth surface, and improved mechanical performance. It can effectively replace hot forging, casting, powder metallurgy, machining, welding, stamping, and reinforcing plastic/composite materials.

传统的冷锻模具设计较多的依赖以往的经验,力学分析通常涉及到过于庞大的数学运算,但随着计算机技术的不断发展,模拟软件得到普及,因此我们现在能够基于数据,科学地对冷锻模具的设计进行分析及改善。

Traditional cold forming dies rely heavily on empirical design, and mechanical analysis often involves cumbersome and complex mathematical calculations. However, with the continuous development of computer technology, the finite element analysis method has become popular, so we can now design, analyze, and improve cold forming dies based on numerical and scientific methods.



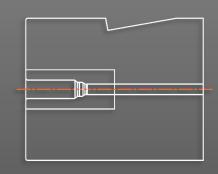
基于有限元处理结果,结合金属拉伸纹,金相结构对比等方法,综合分析模具寿命、模具失效等问题的真正原因,并针对性地提供一系列的科学的设计及改良方案。

Based on finite element analysis results, combined with metal tensile patterns, metallographic structure comparisons and other methods, a comprehensive analysis of the true causes of moulds life and failure issues is conducted, and a series of targeted and scientific design and improvement solutions are provided.

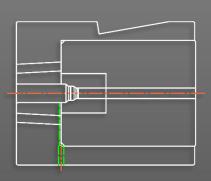


除此之外,我们会结合客户实际使用及成本考虑,将模具结构设计为组合式。这样做可以在后期对单个组件进行更换,方便维修、降低成本和提高模具使用寿命。

In addition, we also consider the customer's actual usage and cost, and design modular cold forming dies. This allows each part to be independently replaceable, making it convenient for customers to repair or extend the life of the dies.









# EQUIPMENT 设备概览

#### 「MACHINERY 加工设备」

火花机(日本) -10 台 慢走丝线切割机(日本、瑞士) -6 台 数控车床(日本、中国台湾)-12 台 数控加工中心(中国台湾)-2 台 雕刻机(日本)-2 台 数控外圆磨床 -2 台 自动平面磨床 -8 台

「MEASURING 检测设备」

轮廓仪(日本) -2台 工具显微镜(日本) -2台 粗糙度仪(日本)-1台 硬度计(日本)-2台 影像仪(中国台湾)-4台 Spark EDM (JAPAN) – 10 Wire-cut EDM (JAPAN, SWISS) – 6 CNC Lathes (JAPAN, CHINA-TAIWAN) – 12 CNC Machining Center (CHINA-TAIWAN) – 2 Engraving Machine (JAPAN) – 2 CNC External Grinder – 2 Auto Plane surface Grinder – 8

Contour Measuring Machine (JAPAN) – 2 Microscopes (JAPAN) – 2 Surface Roughness Measuring Machines (JAPAN) – 1 Hardness Testing Machines (JAPAN) – 2 Profile Projector(CHINA-TAIWAN) – 4

...



我们坚持以"<mark>技术</mark>"驱动生产的原则,全面部署数字化软件及设备。实现了从原料开始,加工环节, 到检测发货,全流程可溯源的生产模式。

基于本地服务器部署的 ERP、MES、PLM、及 CMMS 等系统,在实现高效管理加工环节的同时,确保客户的数据得到可靠的安全保障。

同时在设备方面,我们引入了美国肯纳(KENNAMETAL)公司的智能工具柜及意大利摩登纳(MODULA)的智能仓库等,实现了全自动的物料管理。

We use technology to drive production and have implemented digital software and equipment. Our production process is fully traceable from raw materials to shipment. We have locally deployed ERP, MES, PLM, and CMMS systems for efficient management and secure customer data. We also use intelligent tool cabinets and warehouses for fully automated material management.

**设备服务商** SUPPLIED BY





