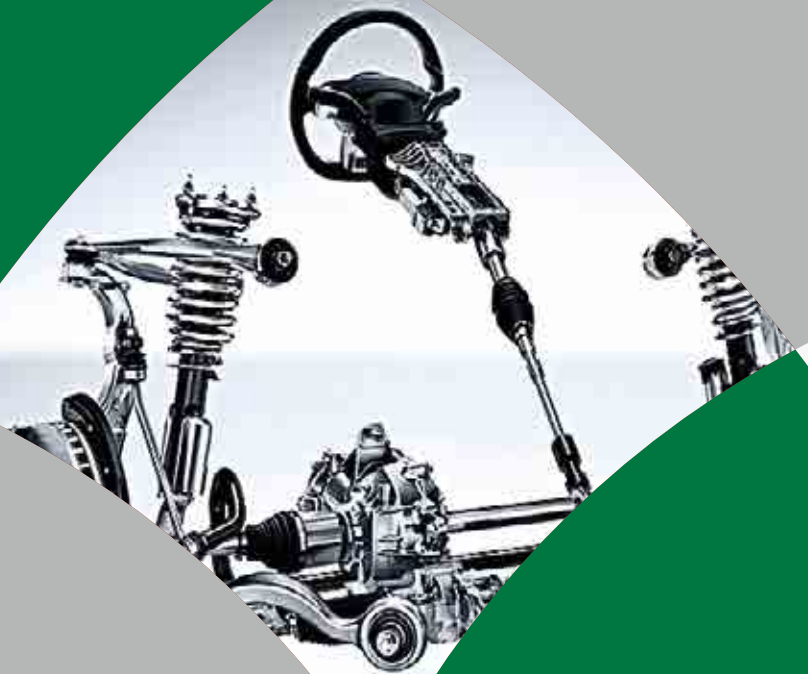




江阴市顶标特殊钢有限公司  
JIANGYIN TOPMARK SPECIAL STEEL CO.,LTD

# 精密零件 产品手册

PRECISION PARTS PRODUCTS MANUAL



江阴市顶标特殊钢有限公司  
JIANGYIN TOPMARK SPECIAL STEEL CO.,LTD

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# CHAPTER 1 COMPANY PROFILE

## 第一章 公司简介

江阴市顶标特殊钢有限公司成立于 2008 年，位于江苏省无锡市江阴市。我们主要生产特种冷轧钢带，包括弹簧钢、工具钢、轴承钢、优质碳素结构钢、合金结构钢等。我们的产品广泛应用于汽车零部件、五金工具、切削工具和传动系统等行业。

配件部门成立于 2009 年。生产自用部件。从 2015 年开始，我们开始设计和制造柴油发动机进气阀和排气阀、汽车冲压结构部件和汽车底盘减震器。

精密配件部门拥有瑞士米克朗、日本马扎克、日本丰和、韩国斗山、台湾友佳、北京精雕等 10 多家数控加工中心。来自韩国的 20 多台数控车床，包括斗山、台中精密机械、沈阳机床和嘉湖数控。

目前，我们已投资 12 台 EBNER 全氢退火炉、1 台 650mm 4-Hi 冷轧 AGC 可逆式轧机、1 台 450mm 4-Hi 冷 AGC 可逆式冷轧机、2 台 350mm 20-Hi 冷轧机、3 条 EBNER 铅浴等温热处理线、2 条油淬火热处理线、6 条水淬热处理线，精密纵剪、矫直机、修边机、平整机等，设备技术比国内竞争对手更先进。

成品带材表面清洁，厚度和公差均匀，我们的带材质量比我们的国家标准更精确。同时，我们还拥有来自奥地利的调质生产线，其生产设备和生产技术均超越了我们的竞争对手。通过热处理生产线，我们可以生产出硬度均匀、强度高、综合力学性能好的产品。此外，产品的几何公差和形状也得到了充分保证。

公司汇聚了钢铁领域的顶尖人才，公司的管理团队拥有在大型钢铁企业从事管理、技术、销售等工作的经验。他们是中国特种钢生产和发展的开拓者和实践者。同时，积极参与全球钢铁行业的市场研发，满足不同客户的个性化需求。

公司依托地理优势、技术优势、人才优势，秉承创新进取、专业诚信、优质高效、客户至上、反应灵敏的企业精神，愿景是成为特种钢带市场的领导者。

Jiangyin topmark Special Steel Co., Ltd. was established in 2008 and is located in Jiangyin City, Wuxi City, Jiangsu Province. We mainly produce special purpose cold-rolled steel strips, including spring steel, tool steel, bearing steel, high-quality carbon structural steel, alloy structural steel, etc. Our products are widely used in industries such as automotive parts, hardware tools, cutting tools, and transmission systems.

The parts department was established in 2009. Production of self use components.

Starting from 2015, we began designing and manufacturing diesel engine inlet and outlet valves, automotive stamping structural components, and automotive chassis shock absorbers.

Precision Parts Department has more than 10 CNC machining centers, including Swiss Mikron, Japanese Mazak, Japanese Fenghe, Korean Doosan, Taiwanese Youjia, and Beijing Jingdiao. More than 20 CNC lathes from South Korea, including Doosan, Taichung Precision Machinery, Shenyang Machine Tool, and Jiahu CNC.

In 2020, the company invested 200 million RMB to relocate its special steel strip department to Xinyu City, Jiangxi Province, covering an area of 133000 square meters.

Currently, we have invested 12 sets of EBNER full hydrogen annealing furnaces, 1 set of 650mm 4 Hi-cold rolling AGC reversing mill, 1 set of 450mm 4 Hi-cold rolling AGC reversing mill, 2 sets of 350mm 20 Hi cold rolling mill, 3 sets of EBNER lead bath isothermal heat treatment lines, 2 sets of oil quenching heat treatment lines, 6 sets of water quenching heat treatment lines, precision slitting lines, leveling machines, trimming machines, skin passing mill and so on, which is more advanced equipment and technology than competitors in domestic of china.

The finished strip has clean surface, uniform thickness and tolerance, the quality of our strip is more precise than our national standard. At the same time also have the quenching and tempering production line from Austria which is more advanced production equipment and production technology than our competitor. With the heat treated production line, we can produce the products with uniform hardness, high strength, and good comprehensive mechanical properties. Also the geometry tolerance and shape of products has also been fully guaranteed.

The company gathers top talents in the field of steel, and the company's management team has experience in management, technology, sales and other work in large steel enterprises. They are pioneers and practitioners in the production and development of special steel in China. At the same time, it actively participates in the market research and development of the global steel industry to meet the individual requirements of different customers.

The company relies on geographical advantages, technical advantages, talent advantages, adhering to the innovation and enterprising, professional integrity, high quality and efficiency, customer first, responsive enterprise spirit company, the vision is to become the leader of the special steel strip market.

# CHAPTER 2 PRECISION PARTS OF TOPMARK SPECIAL STEEL

## 第二章 产品类别

### PRODUCT CATEGORY

#### 产品类别

顶标精密零部件自 2015 年启动研发以来，现已形成柴油发动机配件、汽车底盘衬套类部件、汽车冲压结构件这三类产品。以三个生产基地为依托，在顶标技术中心支撑下，累积了丰富的生产、技术及品质管理经验。顶标精密零部件产品具有性能稳定可靠，尺寸精度高等诸多特点。产品质量广受下游用户认可，具有良好的市场美誉度。

Since in 2015, TOPMARK has developed into three types of products: diesel engine parts, automotive Bushing components, and automotive stamping components. Based on three production bases and supported by the TOPMARK Technology Center, we have accumulated rich experience in production, technology, and quality management. TOPMARK precision component products have many characteristics such as stable and reliable performance, high dimensional accuracy, etc. The product quality is widely recognized by downstream users and has a good market reputation. innovation and enterprising, professional integrity, high quality and efficiency, customer first, responsive enterprise spirit company, the vision is to become the leader of the special steel strip market.



# CHAPTER 3 PRODUCT INTRODUCTION

## 第三章 产品介绍

### DIESEL ENGINE ACCESSORIES

#### 3.1 柴油发动机配件

##### 3.1.1 喷油器 FUEL INJECTORS

喷油器是一种加工精度非常高的精密器件，要求其动态流量范围大，抗堵塞和抗污染能力强以及雾化性能好。产品尺寸公差控制在 2.5-4 $\mu$ m

Fuel injector is a precision device with very high machining accuracy, requiring a large dynamic flow range, strong anti clogging and anti pollution capabilities, and good atomization performance. The product size tolerance is controlled within 2.5-4 $\mu$ m



##### 3.1.2 出油阀 DELIVERY VALVE

出油阀是一个单向阀，在弹簧压力作用下，阀上部圆锥面与阀座严密配合，其作用是在停供时，将高压油管与柱塞上端空腔隔绝，防止高压油管内的油倒流入喷油泵内。产品尺寸公差在 6-10 $\mu$ m

The oil delivery valve is a one-way valve. Under the action of spring pressure, the conical surface of the upper part of the valve fits tightly with the valve seat. Its function is to isolate the high-pressure oil pipe from the upper cavity of the plunger when the supply is stopped, preventing the oil in the high-pressure oil pipe from flowing back into the fuel injection pump. The product size tolerance is 6-10 $\mu$ m



## AUTOMOTIVE BUSHING PARTS

### 3.2 汽车衬套类零件

薄壁衬套采用双端面倒角机，并配合自研发轮盘式检测仪，对产品实现高效及高质量的检验，检测率100%，发货合格率100%。

厚壁衬套采用自研发机械手上下料，并配合流水线及轮盘检测仪，有效的控制了产品的成本。

The thin-walled bushing adopts a double end chamfering machine and is equipped with a self-developed disc type inspection instrument to achieve efficient and high-quality inspection of the product, with a detection rate of 100% and a delivery qualification rate of 100%.

The thick walled bushing adopts a self-developed robotic arm for loading and unloading, and is matched with an assembly line and a wheel disc detector, effectively controlling the cost of the product.

#### 3.2.1 汽车底盘防震橡胶用衬套

#### ANTI VIBRATION RUBBER BUSHING



#### 3.2.2 汽车转向系统用转向器

#### STEERING GEAR FOR STEERING SYSTEM



#### 3.2.3 汽车液压缓冲器副油箱

#### HYDRAULIC BUFFER AUXILIARY OIL TANK



# AUTOMOTIVE STAMPING PARTS

## 3.3 汽车冲压件

根据客人产品自行设计制造模具，根据产品要求模具材料均来自瑞典一胜百、日本大同、日本日立、中国天工、东北特钢。

公司拥有来自台湾 H3M 及国产东雄 125 吨、200 吨、300 吨、500 吨一体成型式冲床各一台，原材料使用量约 7000 吨 / 年。

Design and manufacture molds according to the customer's product requirements, with mold materials sourced from Sweden's ASSAB, Japan's Datong, Japan's Hitachi, China's Tiangong, and Northeast Special Steel.

Our company has stamping machines with Taiwan H3M and domestic Dongxiong weighing 125 tons, 200 tons, 300 tons, and 500 tons, with an annual raw material usage of approximately 7000 tons.

### 3.3.1 汽车中央扶手箱支架 CAR CENTER ARMREST BOX BRACKET



### 3.3.3 汽车线束抱箍 AUTOMOTIVE WIRING HARNESS CLAMP



### 3.3.2 汽车数据采集中心外壳 AUTOMOTIVE DATA COLLECTION CENTER



# CHAPTER 4 PRODUCTION EQUIPMENT

## 第四章 生产设备



将不同制造商的产品通过 3D 摄像机与机器人组合，实现三维随机拾取  
Combining products from different manufacturers with 3D cameras and robots to achieve 3D random picking.

自研双端面加工机  
加工范围：外径  $\phi 60$  以下，长度：  
27-90mm，壁厚 <6mm

Self developed double end face  
machining machine

Processing range: Outer diameter  
below  $\phi 60$ , length: 27-90mm, wall  
thickness <6mm.



自研自动上下料双端面加工流水线  
加工范围：外径  $\phi 60$  以下，长度：  
27-90mm，壁厚 <6mm

Self developed automatic loading  
and unloading double end machining  
assembly line

Processing range: Outer diameter  
below  $\phi 60$ , length: 27-90mm, wall  
thickness <6mm





锯床  
SAWING MACHINE



中孔座面磨床  
MEDIUM HOLE SEAT SURFACE GRINDER



线切割  
WIRE CUTTING MACHINERY



五轴加工中心  
FIVE AXIS MACHINING CENTER



热处理中心  
HEAT TREATMENT CENTER



高压油清洗机  
HIGH PRESSURE OIL CLEANING MACHINE



外圆磨床  
CYLINDRICAL GRINDER



激光焊接机  
LASER WELDING MACHINE

# CHAPTER 4 TESTING EQUIPMENT

## 第四章 检测设备

日本三丰三坐标测量仪 Mitutoyo CMM  
用于喷油器及出油阀的抽检，及产品开发  
Used for sampling inspection of fuel injectors a  
delivery valves, as well as product development



海克斯康三坐标 Hexagon CMM  
衬套及其他批量加工产品基地使用  
Bushing and other mass-produced  
products are used in the base



三丰轮廓仪 Mitutoyo profilometer  
Used for sampling inspection of fuel injectors  
and delivery valves, as well as product development



圆度测量仪 roundness measuring instrument  
Used for sampling inspection of fuel injectors  
and delivery valves, as well as product development



自研设备：轮盘式检测仪  
Self developed equipment: Wheel type detector  
Apply to automotive bushing components, input fixed parameters, and inspect each size and surface.

自研设备：AI 图像识别电子显微检测仪  
使用简易电子显微镜，对最多 36 个孔逐个进行目视检查。通过 AI 自动识别来减少检测时间以及人为错误。

Self developed equipment: AI image recognition electron microscopy detector

Use a simple electron microscope to visually inspect up to 36 holes one by one. Reduce detection time and human errors through AI automatic recognition.



维氏硬度计 Vickers hardness tester



洛氏硬度计 rockwell hardness tester



三目正置金相显微镜  
Three eye upright metallographic microscope



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