

精诚时代集团

浙江精诚时代科技股份有限公司  
浙江台州黄岩新前建业路88号

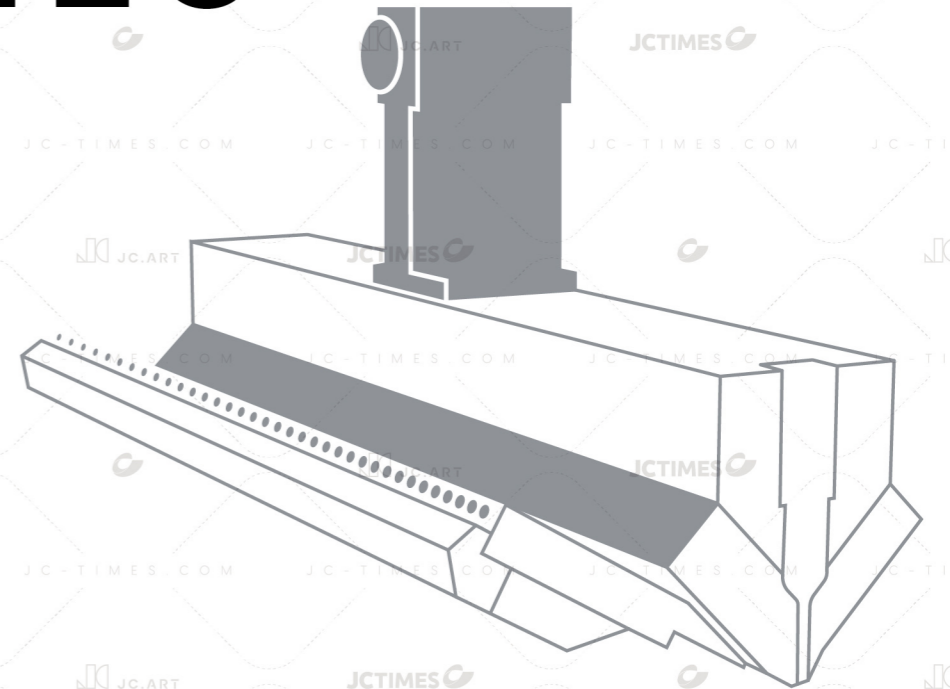


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# FLAT DIE SERIES



JCTIMES GROUP

Zhejiang JCTIMES Technology Co., Ltd

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平模系列 模头

From  
Dreams  
to  
Reality

知您所需  
创您所想

## 技术实力与创新能力

作为全球平模头行业的领军品牌, 精诚时代集团深耕行业二十余年, 见证并推动了中国平模头产业从无到有、从小到大、从大到强的发展历程。

建有全球最大的精密模头智能制造基地, 并拥有独立的模头表面处理工厂。引入国际先进加工设备, 结合全球领先的流体仿真分析技术, 以技术创新为核心驱动力, 致力于为全球客户提供高品质的挤出模头及配套解决方案。

在挤出模头市场占有率位居全球前列, 产品远销40多个国家和地区, 累计生产55000多套模头, 为10000多家企业提供优质服务。全球多家500强企业均为精诚的重要客户, 国内多数生产线装备企业也与精诚建立了紧密的战略合作伙伴关系。

## 核心产品

挤出平模头

吹膜圆模头

涂布模头

精密挤出配件

产品广泛应用于电子、汽车、建筑材料、航天航空、新能源(太阳能、动力汽车、锂电池)、医疗卫生、食品包装等领域, 为客户提供全方位的解决方案。

# O2 Company Profile

## Technical Capabilities & Innovation

JCTIMES Group is a global leader in flat die technology, with over 20 years of industry experience. We have witnessed and contributed to the development of China's flat die industry from its beginnings to its current position as a world-class competitor.

We operate the world's largest precision die manufacturing base and have our own surface treatment facility. By combining advanced international production equipment with leading fluid simulation technology, we focus on innovation to provide high-quality extrusion dies and customized solutions for global customers.

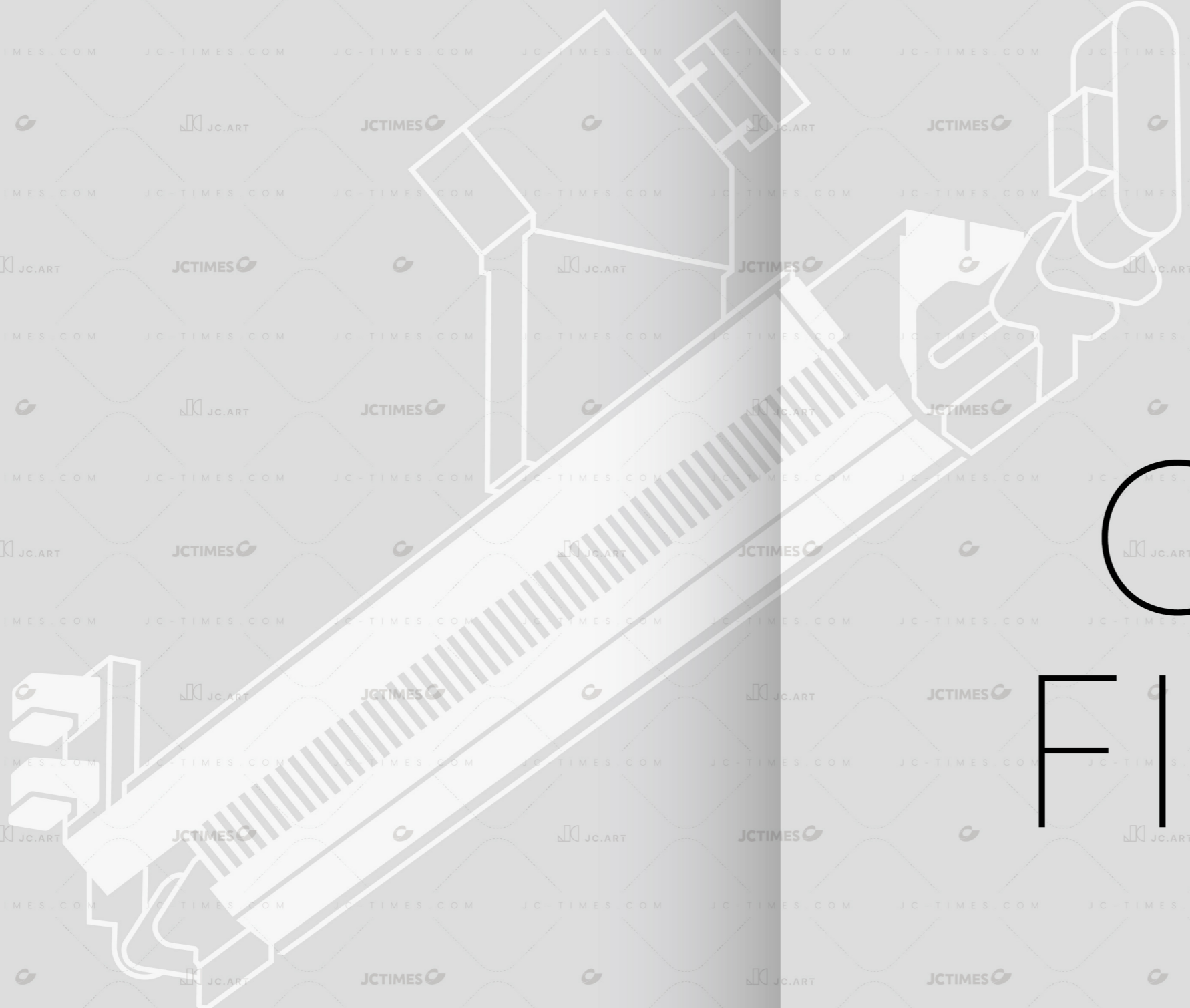
Holds a top global market position in extrusion dies, with products exported to over 40 countries/regions. Accumulated production exceeds 55,000 die sets, serving 10,000+ enterprises with premium services. Multiple Fortune 500 companies are key accounts, while most domestic production line manufacturers maintain close strategic partnerships with the company.

## Core Products

Extrusion Flat Dies  
Blown Film Dies  
Coating Dies  
Precision Extrusion Equipment

Our products are widely used in electronics, automotive, building materials, aerospace, new energy (solar, EVs, lithium batteries), medical/healthcare, and food packaging industries, offering comprehensive solutions for customers.

流延膜模头



CAST  
FILM  
DIE

# O6 Single Layer Die

Single-layer flow channel design and single-material extrusion.

The thinnest film that can be produced is 2 $\mu$ m. The standard width for CPP/CPE die is 1000mm to 6000mm, or can be customized according to customer requirements.

Covers almost all polymers such as PP, PE, PC, TPU, PET, EVA, PVB, and others.

## 模腔抛光精度

Die Cavity Roughness

Ra 0.03-0.04  $\mu$ m

## 模唇抛光精度

Die Lip Roughness

Ra 0.02-0.03  $\mu$ m

## 模唇尖角最高可达

Minimum Achievable Die Lip Corner Radius

R 0.05-0.1 mm

## 激光硬化可达

Laser Hardening Capability

<R 0.01 mm

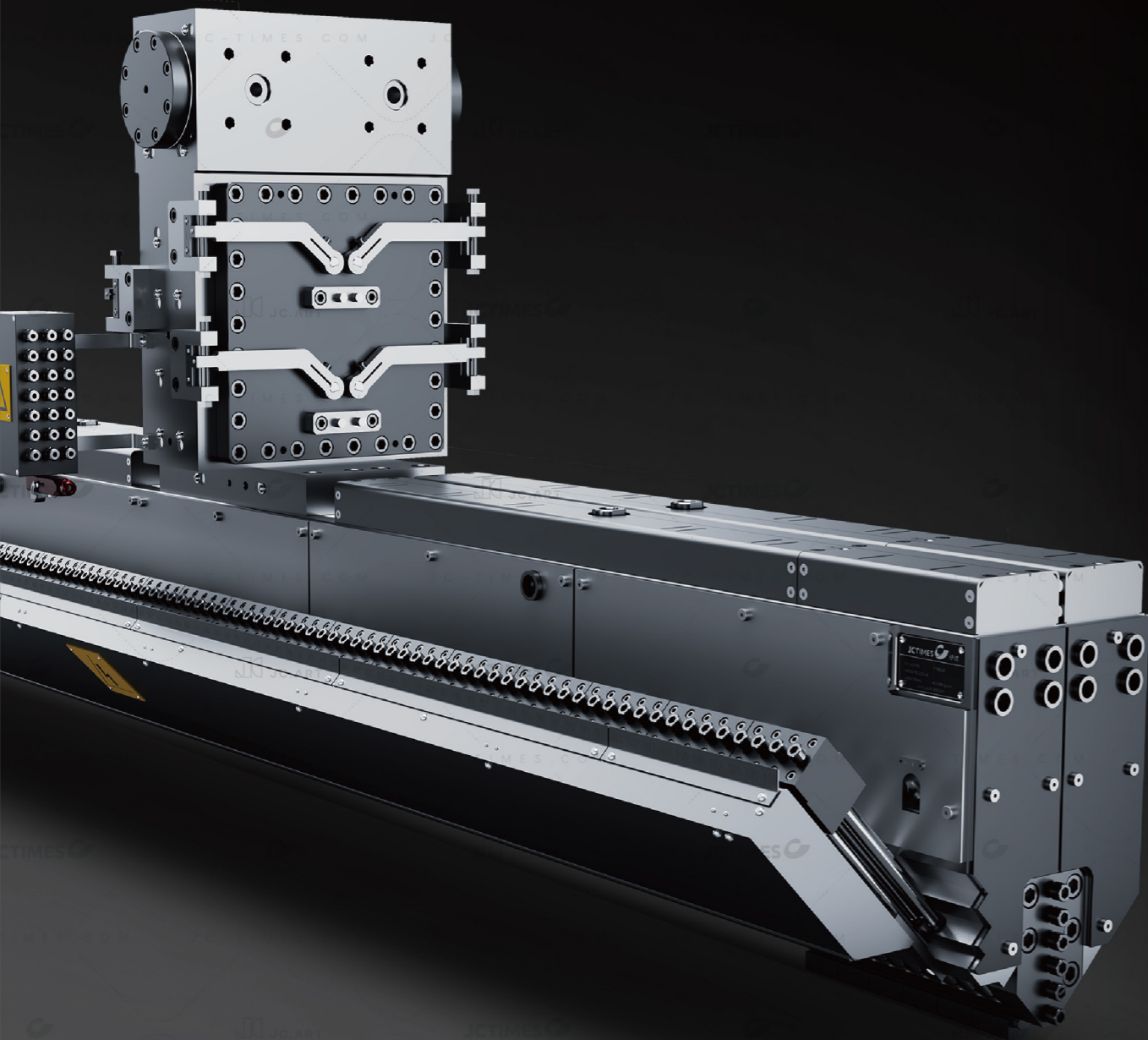
## 普通流延膜模头

单层流道设计、单一材料挤出



最薄可生产2 $\mu$ m薄膜, 通常CPP/CPE模头标准宽幅: 1000mm-6000mm, 或按照客户需求任意订制。

已开发材料: 几乎涵盖了所有的聚合物如PP、PE、PC、TPU、PET、EVA、PVB等。



## 分配器共挤模头

分配器和模头一体化, 实现颜色、功能层复合, 流线型流道减少滞留。配合复合型共挤分配器可实现更多层的共挤加工, 高效方便的实现在线复合比例调节, 模头可配合3层、5层、7层、9层分配器, 或上百层的微积层分配器以适用于高性能薄膜生产。

# O8 Feedblock Co-Extrusion Die

This unified design enables color and functional layer compounding, with streamlined flow channels that minimize material stagnation. When paired with a multi-manifold coextrusion feedblock, it facilitates extrusion with additional layers. The system allows efficient on-the-fly adjustment of composite ratios, with die compatibility ranging from 3-layer, 5-layer, 7-layer, and 9-layer distributors to micro-layer systems with hundreds of layers for high-performance film production.

## 模腔抛光精度

Die Cavity Roughness

**Ra 0.03-0.04  $\mu\text{m}$**

## 分层比例可最小

The Layer Ratio Can Be As Low As

**10 %**

## 层均匀性在 $\pm 5\%$ 以内

Layer uniformity within  $\pm 5\%$

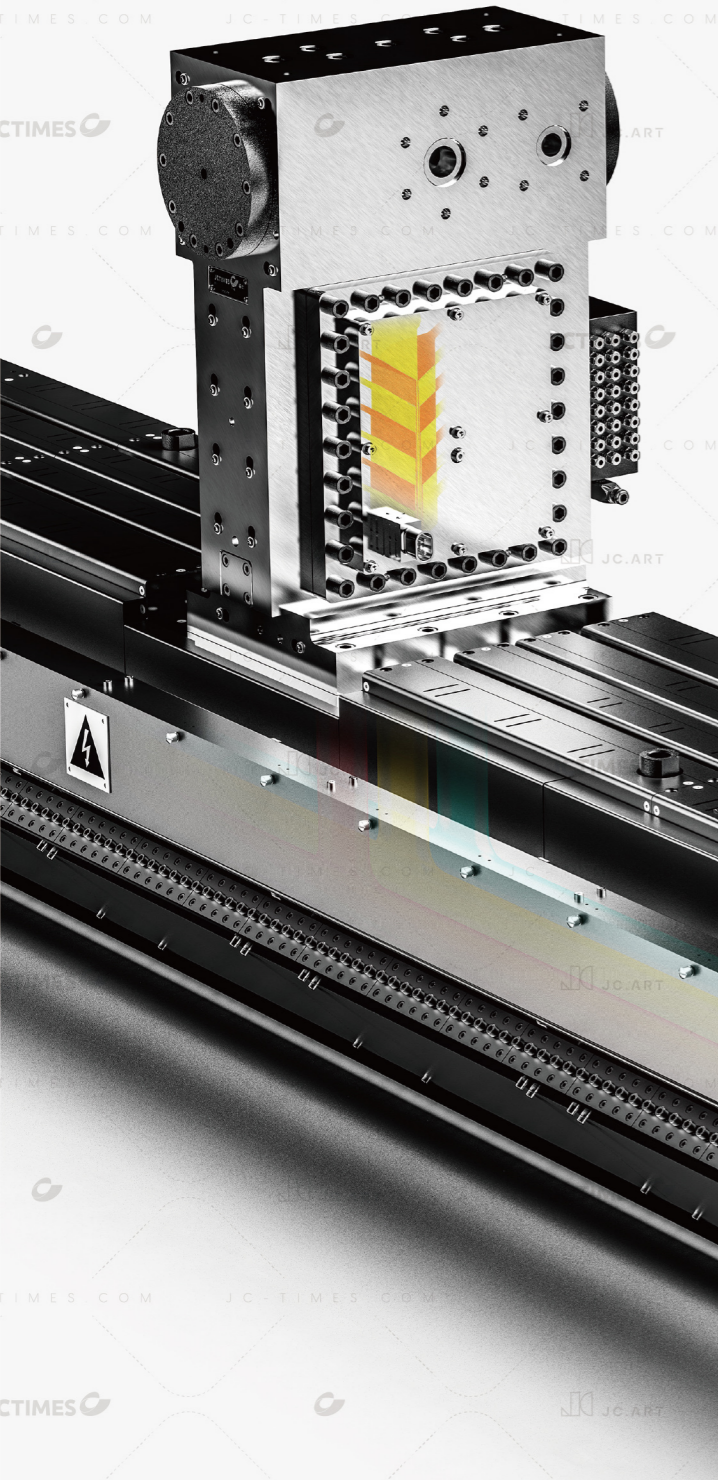
**$\pm 5\%$**

已开发材料:

各种常见聚酯均可以

Developed Materials:

Compatible with all common types of polyester.



## 多层模内共挤模头

适用于对各复合层的均匀性要求高, 各层原料粘度差异大, 或各层原料有一定的温度差异的复合加工。多流道设计, 支持不同材料(如EVOH/PE)共挤。

# 10 Multi-manifold Co-Extrusion Die

Suitable for composite processing requiring high uniformity across layers, large differences in material viscosities, or certain temperature differences between layers. The multi-manifold design supports co-extrusion of different materials (such as EVOH/PE)

## 宽度最大可达

The Maximum Die Width Can Reach Up To

5000 mm

## 模腔抛光精度

Die Cavity Roughness

Ra 0.03-0.04  $\mu\text{m}$

## 分层比例可最小

The Layer Ratio Can Be As Low As

5 %

## 模唇抛光精度

Die Lip Roughness

Ra 0.02-0.03  $\mu\text{m}$

## 层均匀性在 $\pm 2.5\%$ 以内

Layer Uniformity Within  $\pm 5\%$

$\pm 2.5\%$

## 模唇尖角最高可达

Minimum Achievable Die Lip Corner Radius

R 0.05-0.1 mm

## 激光硬化可达

Laser Hardening Capability

$< R 0.01$  mm

已开发材料: PP、PE、PET、PC、PMMA、PS、PA、PI、TPU等

Developed Materials:  
PP, PE, PET, PC, PMMA, PS, PA, PI, TPU, etc.

# 12 2.5D Analysis

## Independent research of 2.5D multilayer coextrusion flow channel analysis system

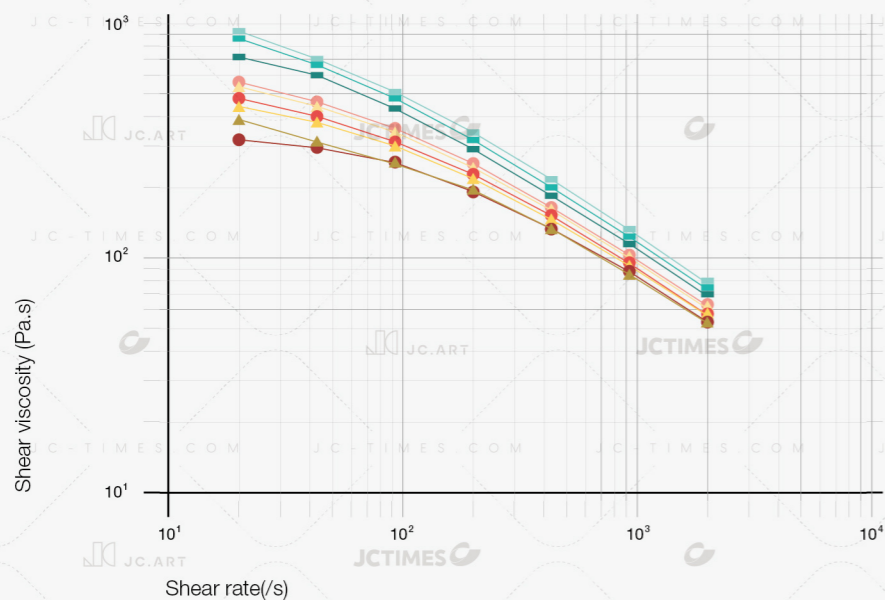
provide exclusive manifold design for different raw materials to improve production capacity and quality.

### 剪切速率和剪切粘度的关系曲线

The relationship between shear rate and shear viscosity

- CPP热封层-T230
- CPP芯层-T230
- ▲ CPP电晕层-T230
- CPP热封层-T240
- CPP芯层-T240
- ▲ CPP电晕层-T240
- CPP热封层-T250
- CPP芯层-T250
- ▲ CPP电晕层-T250

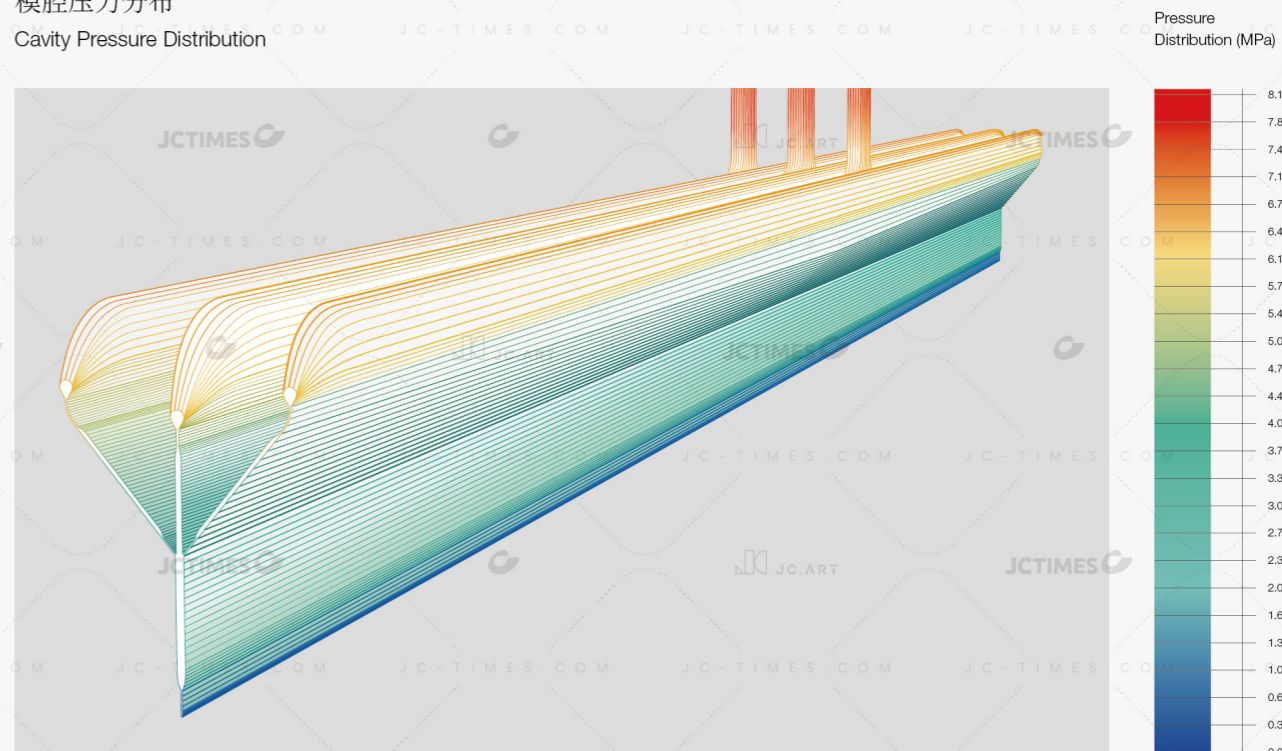
Rosand Precision Rheometer



自主研发2.5D多层共挤解析系统, 针对不同原料提供专属的流道设计, 提升产能和品质。

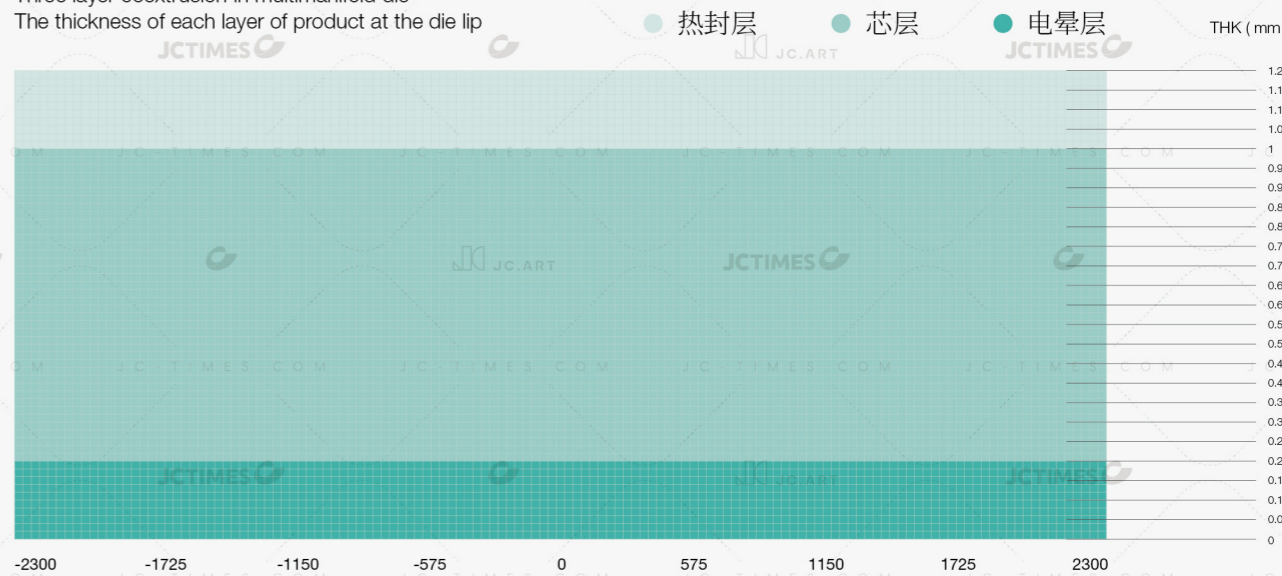
### 模腔压力分布

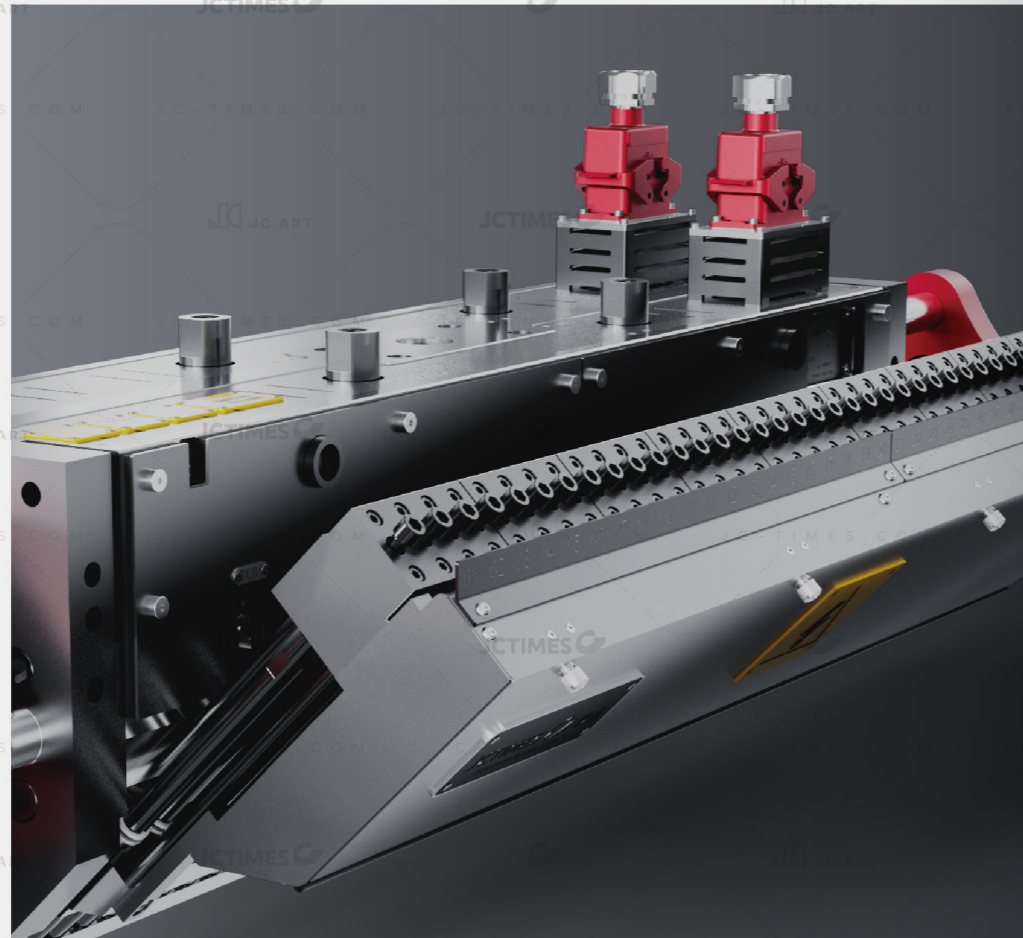
Cavity Pressure Distribution



### 模腔压力分布

Three layer coextrusion in multimanifold die  
The thickness of each layer of product at the die lip





## Automatic Adjustment System

In the actual production process, the expansion bolts are automatically fine-tuned in real time, and the thickness gauge automatically and horizontally reciprocates to accurately detect and feedback data. The product accuracy is quickly and effectively controlled.

### 自动调节系统

在实际生产过程中,通过膨胀螺栓实时自动微调,再经测厚仪自动横向往复精准检测并反馈数据,快速有效控制制品精度。

# 14 Optional structures

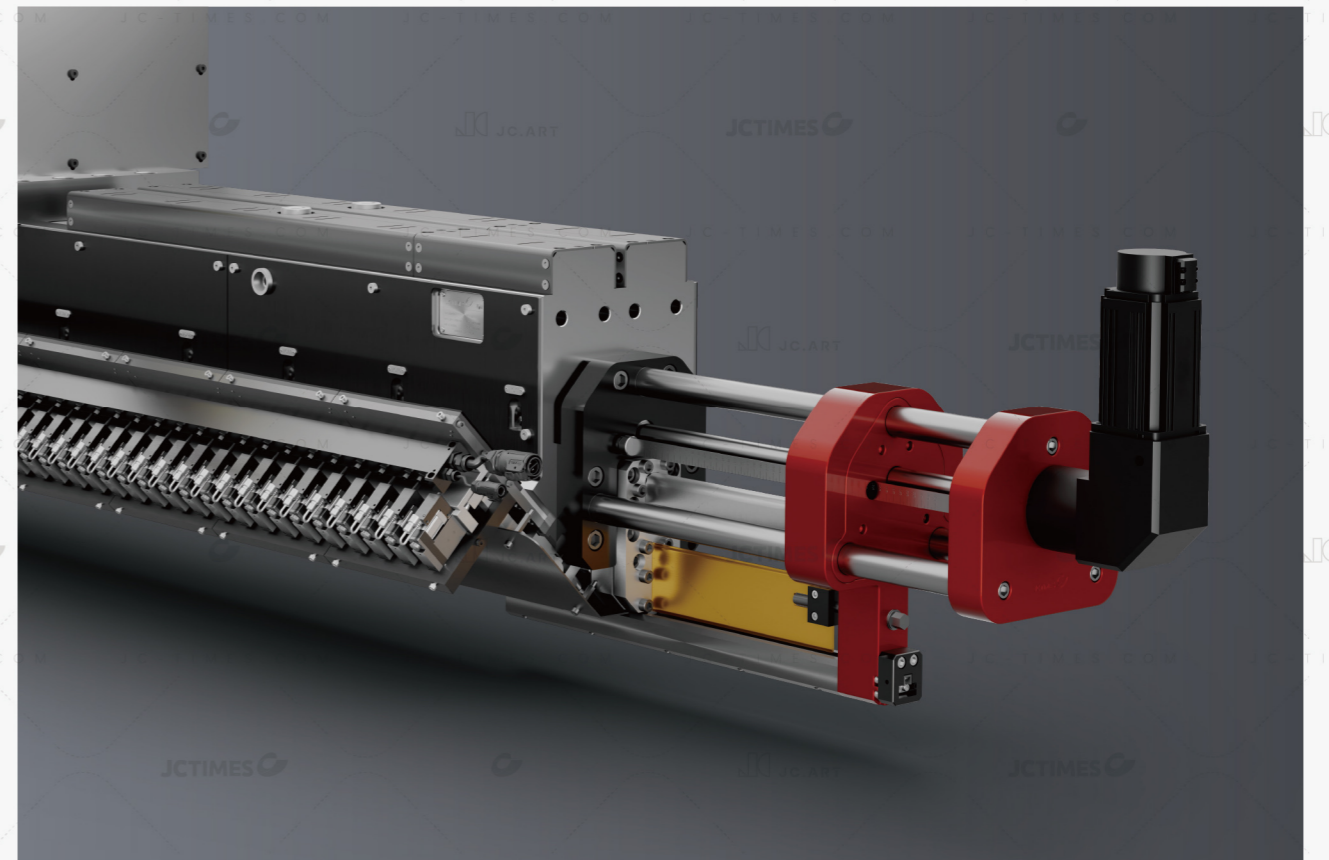
## 可选配结构

## Internal/External Deckle Width Adjustment System

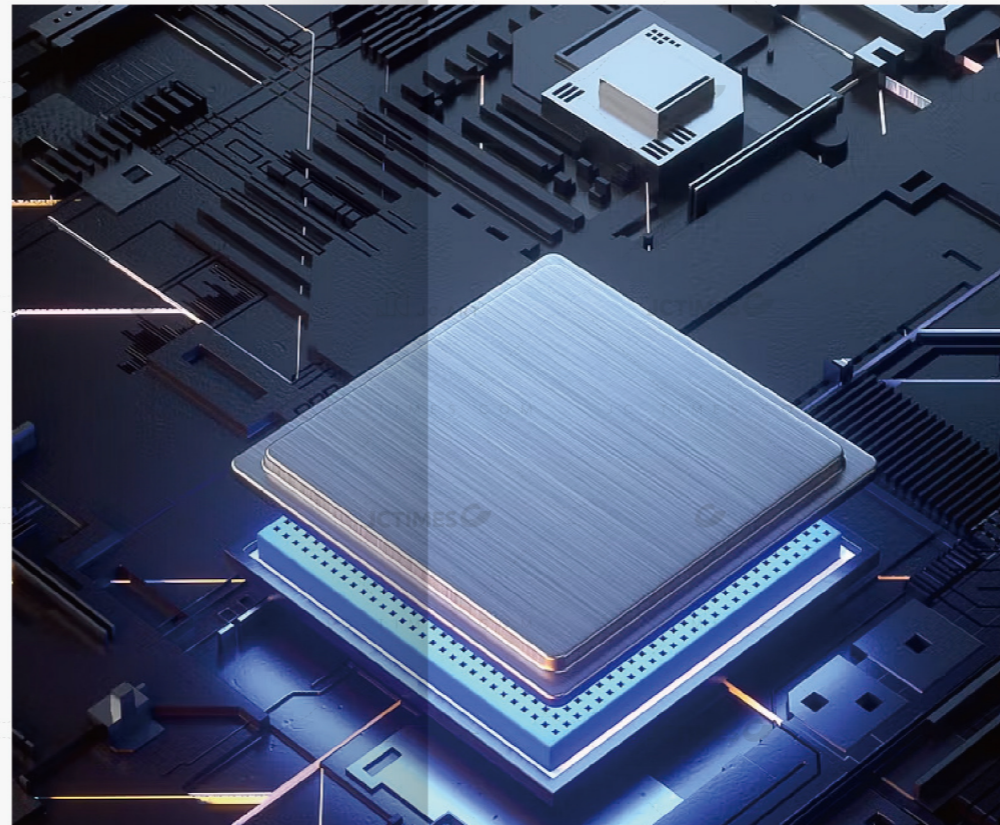
Equipped with various internal/external deckle adjustment systems to accommodate different materials and die configurations. Features specialized edge-thinning deckle designs that allow real-time adjustment without stopping production, ensuring uniform edge thickness.

### 内外挡幅宽调节装置

多种内外挡幅宽调节装置,满足不同物料及外形结构模头的使用场景。无须停机即可调节,特殊的消厚边型挡条设计,制品边部厚薄均匀。



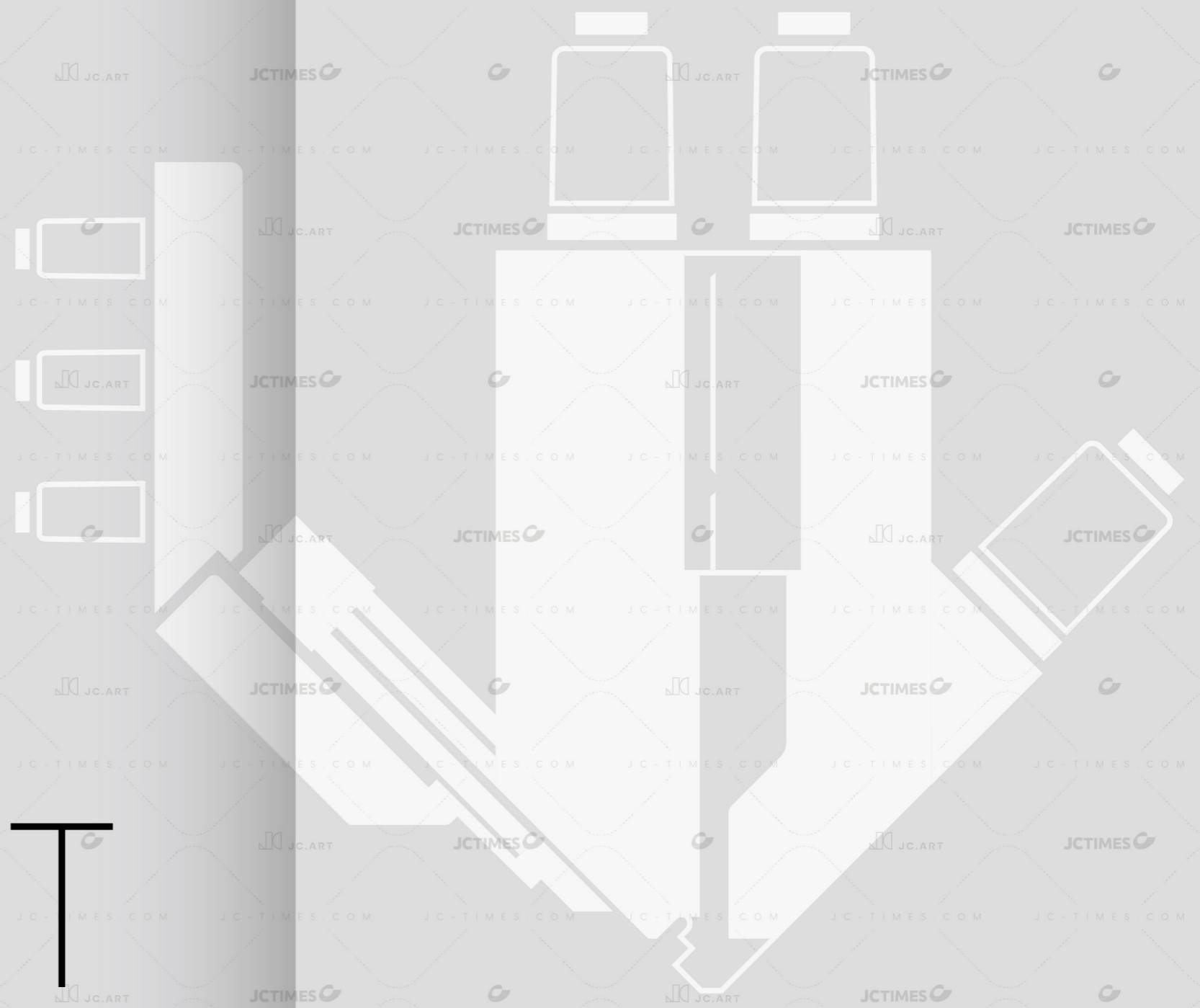
# 16 Application



Applications:  
Widely utilized in packaging (including pharmaceutical and food packaging), stretch wrap, waterproof membranes, high-barrier films, solar backsheets, electronic component protective films, and high-precision optical films.

广泛应用于  
包装领域(医药包装、食品包装)、缠绕膜、防水膜、高阻隔隔膜、  
太阳能背板隔膜、电子元件保护膜、高精度光学膜。

# PLATE SHEET DIE



板片材 模头

### 模腔抛光精度

Die Cavity Roughness

Ra 0.03-0.04  $\mu\text{m}$

### 模唇抛光精度

Die Lip Roughness

Ra 0.02-0.03  $\mu\text{m}$

### 模唇尖角最高可达

Minimum Achievable Die Lip Corner Radius

R 0.05-0.1 mm

### 激光硬化可达

Laser Hardening Capability

<R 0.01 mm

### 片材模头

主要用于生产厚度较薄的片状材料, 通常适用厚度范围为0.3mm-1.5mm

### 板材模头

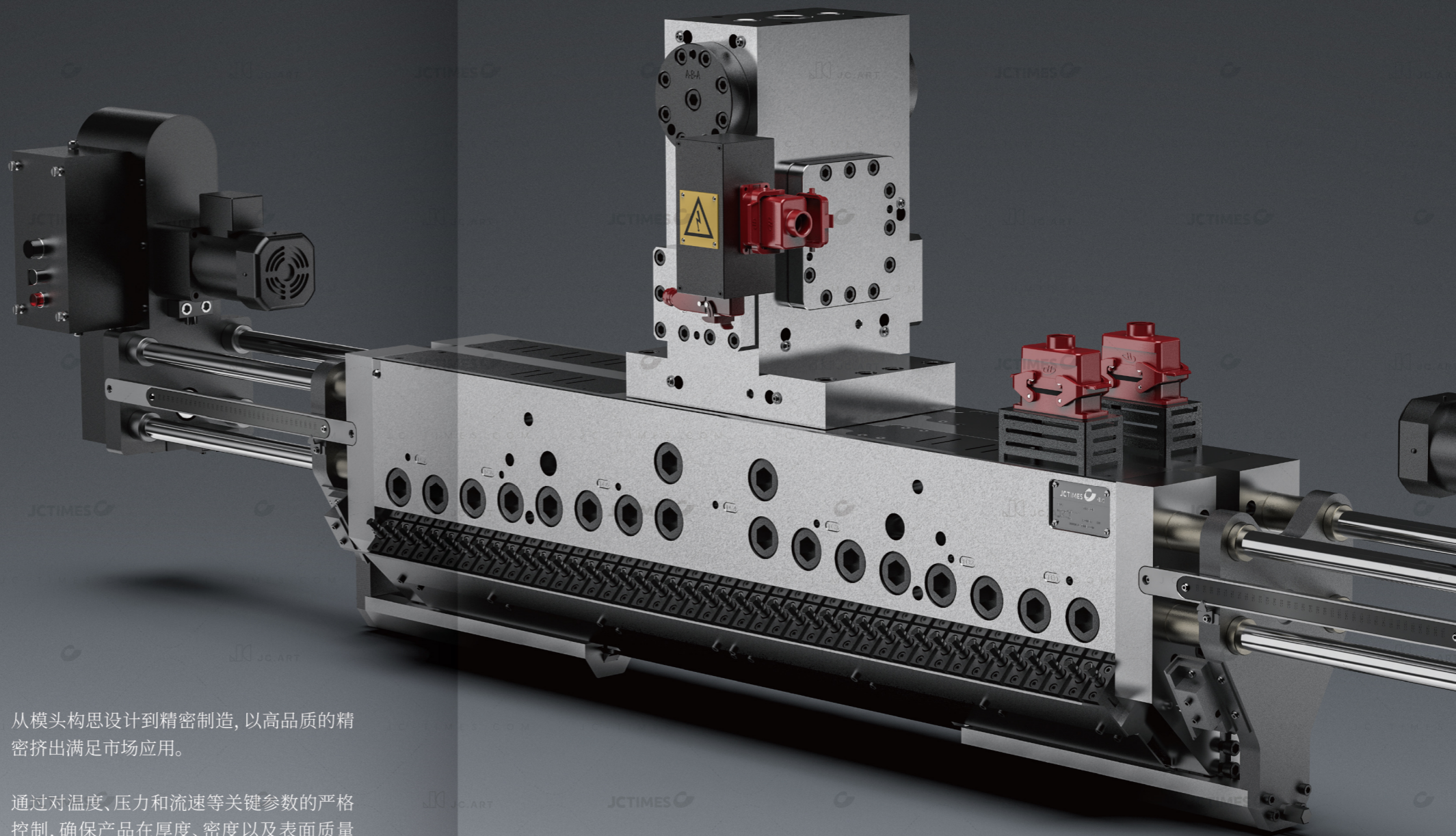
专为生产厚型板材设计, 通常适用厚度范围为1.5mm以上。

# 20 Plate Sheet Die

From conceptual design to precision manufacturing, our high-performance extrusion dies deliver superior sheet production quality. Through rigorous control of critical parameters including temperature, pressure, and flow velocity, we ensure optimal product thickness, density, and surface finish - meeting the most demanding application requirements.

Sheet die are primarily used for producing thin-gauge sheet materials, typically suitable for thickness ranges of 0.3mm to 1.5mm.

Plate die are specifically designed for thick-gauge plate production, generally applicable for thicknesses above 1.5mm.



从模头构思设计到精密制造, 以高品质的精密挤出满足市场应用。

通过对温度、压力和流速等关键参数的严格控制, 确保产品在厚度、密度以及表面质量上达到理想状态。

### 中空板模头

真空定型模表面做特殊不粘涂层、硬化处理, 独立分区抽真空装置及温度控制系统, 真空封边。芯棒内部的气流杆将气腔均匀分成多个分割区域, 可独立调节各区气体流量, 气流分布均匀。



# 22 Hollow Panel Extrusion Die

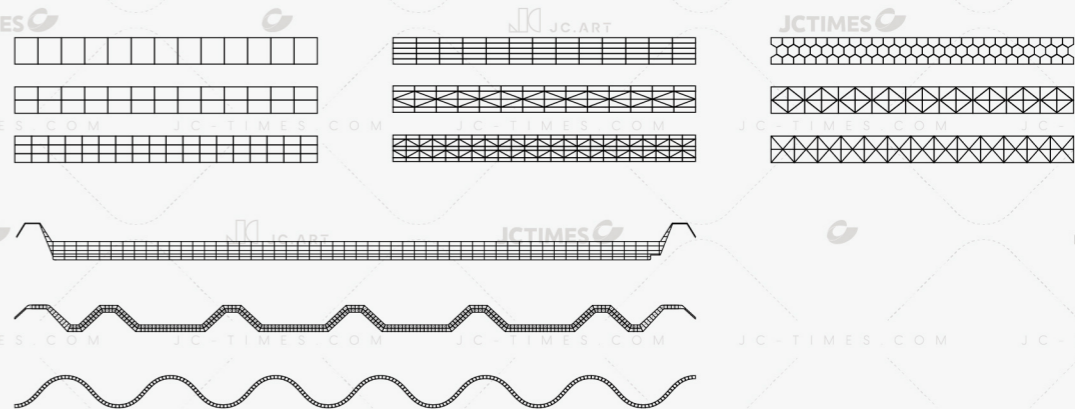
The surface of calibrator units is treated with a special non-stick coating and hardening process, featuring independently zoned vacuum systems with temperature control and vacuum edge sealing. Inside the core rod, airflow bars evenly divide the plenum chamber into multiple sections, allowing independent regulation of gas flow in each zone for uniform air distribution.

Conventional hollow products have square, honeycomb, beige-type and other cross-sections. Other shapes can also be customized according to customer requirements.

#### Multilayer Coextrusion

PC+UV innovative patented design, UV+PC+UV double-sided coextrusion, UV+PC single-sided coextrusion. Coextruded with feedblock, usage of UV decreasing by 30%.

常规中空制品断面有方格形、蜂窝形、米字形等也可根据用户需求定制其他形状



### 多层复合共挤

PC+UV创新专利设计, UV+PC+UV双面复合、UV+PC单面复合, 结合分配器复合, 实现UV「紫外线吸收剂」节约30%。



普通型 Ordinary type      PC      UV      双面UV节约型 Double-sided UV saving type

# 24 Technical Parameter

上下模唇厚度可调, 适配PC、PP中空结构, 轻量化且强度高。

The upper and lower die lips feature adjustable thickness, compatible with pc and pp hollow structures, offering lightweight properties and high strength.

## 模腔抛光精度

Die Cavity Roughness

**Ra 0.03-0.04**  $\mu\text{m}$

## 模芯经特殊工艺切割立筋内壁光洁度

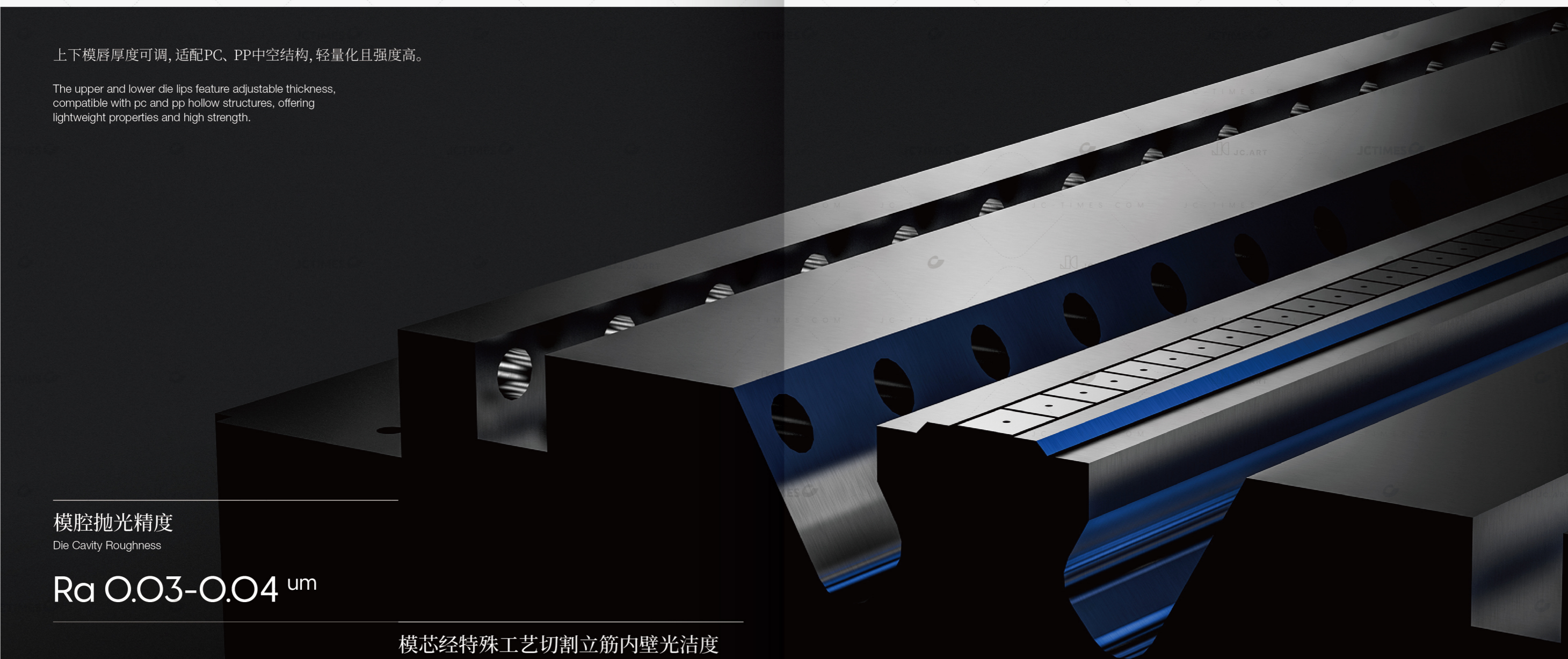
The Mold Core Undergoes Special Processing To Achieve Smooth Inner Wall Surfaces On The Ribs After Cutting.

**Ra 0.1**  $\mu\text{m}$

## 模唇抛光精度

Die Lip Roughness

**Ra 0.02-0.03**  $\mu\text{m}$



# 26 Foam Sheet Extrusion Die

## 模唇流面抛光精度

Die Lip Flow Surface Roughness

Ra 0.04-0.05  $\mu\text{m}$

## 其他流面抛光精度

Other Flow Surface Roughness

Ra 0.04-0.06  $\mu\text{m}$

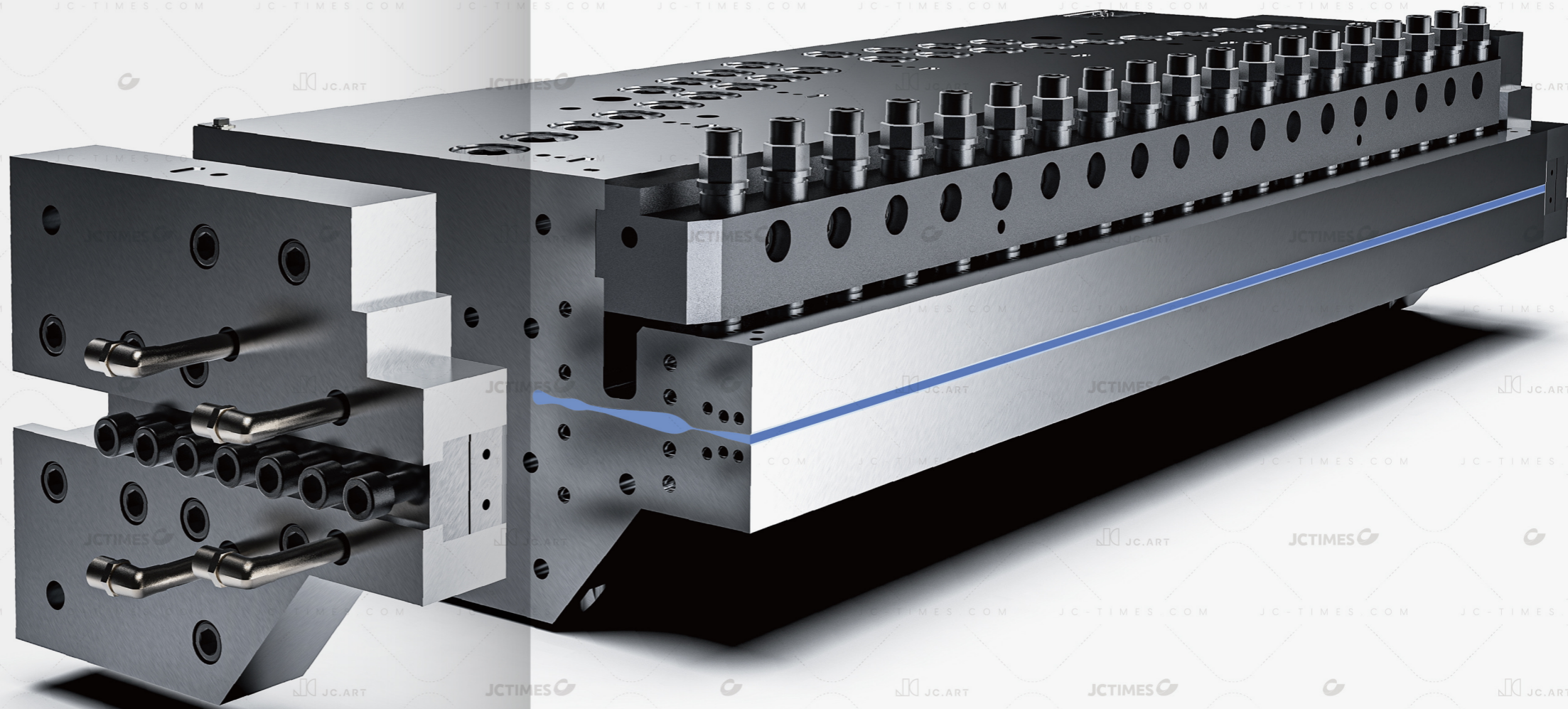
## 外形抛光精度

Exterior Surface Roughness

Ra 0.07-0.08  $\mu\text{m}$

Precise control of temperature, pressure, and flow rate effectively regulates the foaming process, resulting in fine and uniform foam structure that enhances the product's thermal insulation, shock absorption, and sound absorption properties. The automated design significantly improves production efficiency, shortens cycle time, reduces energy consumption and material waste, while ensuring stable product quality and performance.

In-mold / out-of-mold foaming, The die design must ensure uniform distribution of the foaming agent in the melt to guarantee consistent foaming.



模外发泡/模内发泡，  
模头设计需确保发泡剂在熔体中均匀分布，  
确保发泡的均匀性。

## 发泡板模头

通过精确调控温度、压力和流速，有效控制泡沫的形成过程，使泡沫结构  
细密均匀，提高产品的隔热、减震和吸音性能。

自动化设计显著提高生产效率，缩短生产周期，降低能耗和原料浪费，确  
保产品质量和性能稳定。

# 28 Optional structures

可选配结构

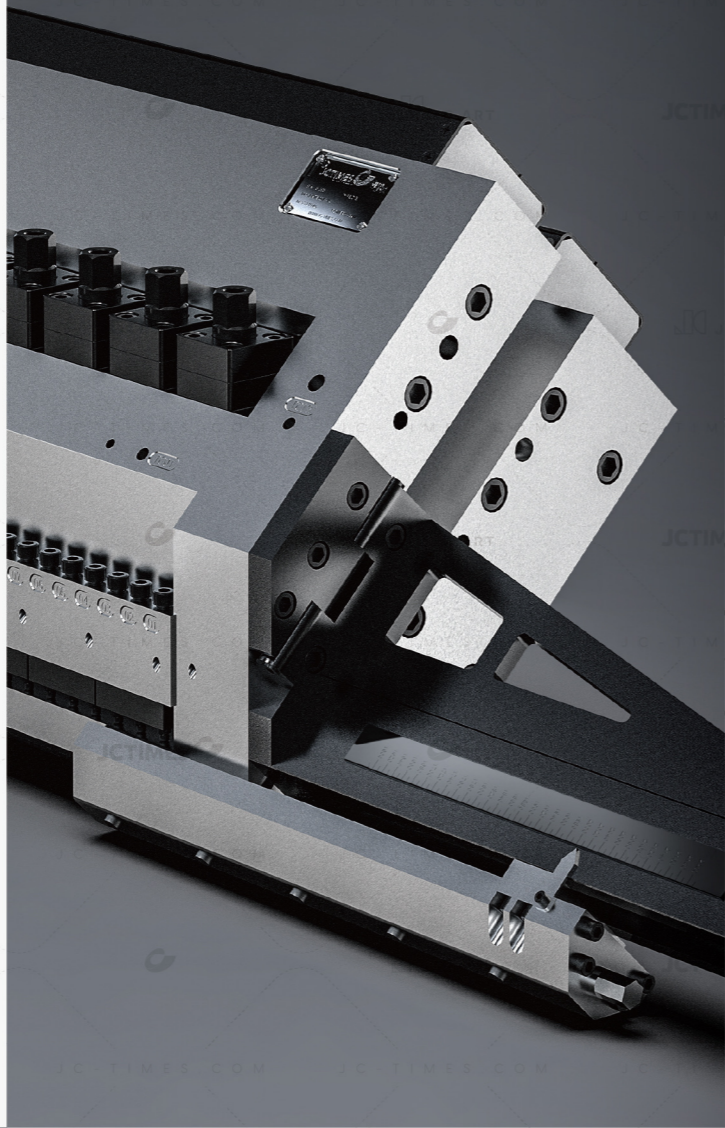
## Automatic Adjustment System

(Applied on Sheet Dies Exclusively)

Real-time automatic micro-adjustment via expansion bolts based on production conditions, with automatic transverse reciprocating measurement and feedback from thickness gauges for rapid and precise product control.

### 自动调节系统 (只应用于片材模头)

根据生产情况通过膨胀螺栓实时自动微调,经测厚仪自动横向往复准确检测反馈数据,快速有效控制制品精度。



## External Deckle System

Multi-position internal/external deckle systems enable on-the-fly width adjustment without production interruption.

### 外挡装置

多种内外挡宽幅调节装置,无须停机即可调节。

## Quick Opening System

Quick open the die lip. Remote control. Operation in two minutes.

### 快速开口

快速调节模唇开口,在线操作,两分钟内即可实现。

# 30 Application

Flat Die Series  
Plate Sheet Die

29 - 30

Sheets are primarily used for:

General-purpose thermoformed sheets, food and pharmaceutical packaging, daily necessities (shoe soles/stationery), architectural decoration (furniture laminates), biodegradable and eco-friendly materials.

Plates are mainly applied in:

Industrial construction (PC solid sheets/foam boards), hollow sun panels, LCD backplates, high-speed rail and airport curtain walls/roofing, outdoor flooring, and architectural partitions.

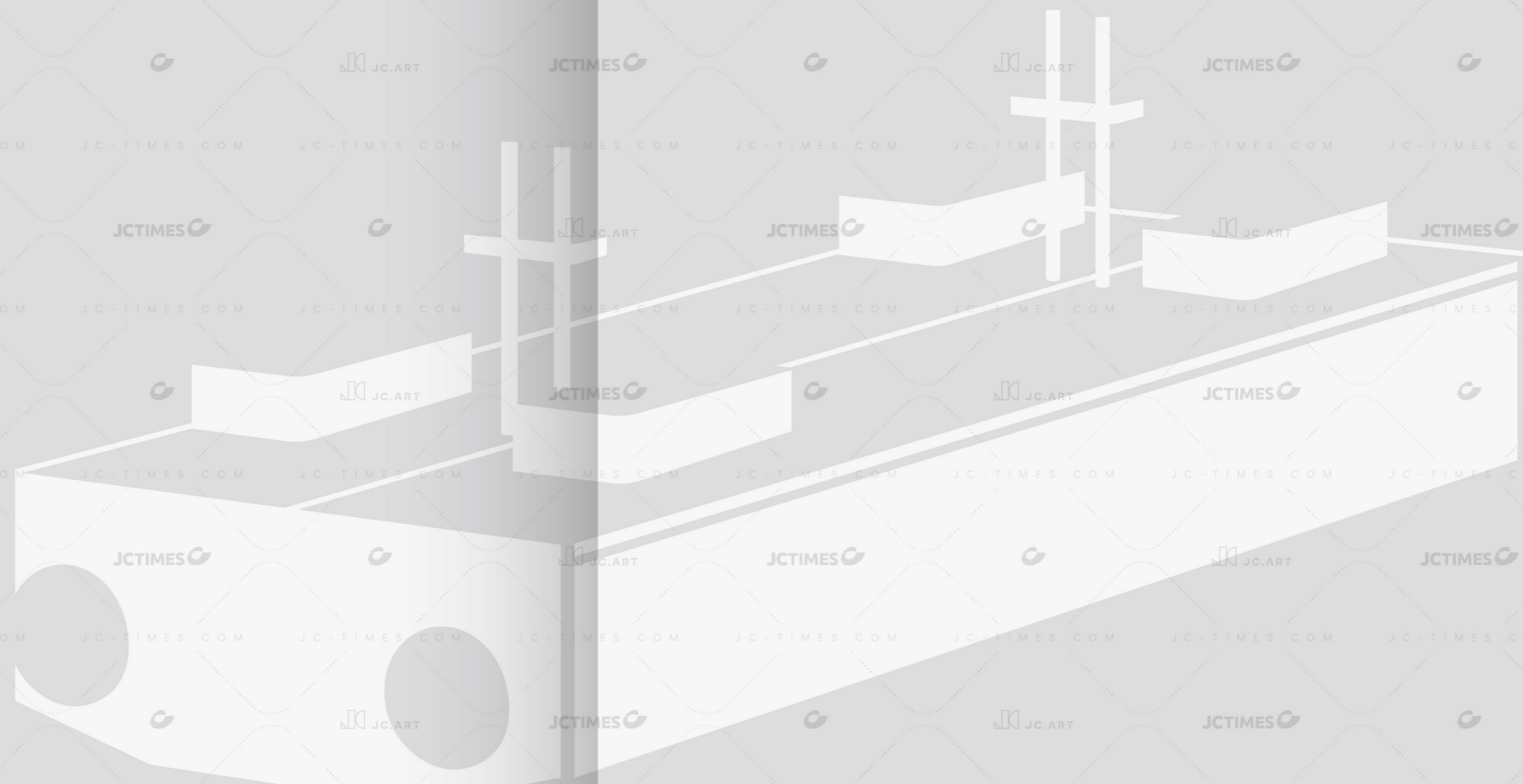


片材主要应用于  
普通吸塑片材、食品及药品包装、日用品(鞋底/文具)、建筑装饰(家居贴膜)、可降解及环保材料。

板材主要应用于  
工业建筑(PC耐力板/发泡板)、中空阳光板、液晶显示背板、高铁航空站幕墙及屋面、户外地板、建筑隔断等。

# NONWOVEN

# DIE



非织造布 模头

# 34 Melt Blown Die

采用SUS630/SUS431等优质钢材

High-quality steel material: SUS630 and SUS431.

## SUS630/SUS431

模腔抛光精度

Die Cavity Roughness

## Ra 0.03-0.04 $\mu\text{m}$



With meticulous craftsmanship dedicated to perfecting every detail, we pursue flawlessness in each process—from die design validation, steel quality control, precision machining to intelligent inspection—delivering tailor-made solutions for users.

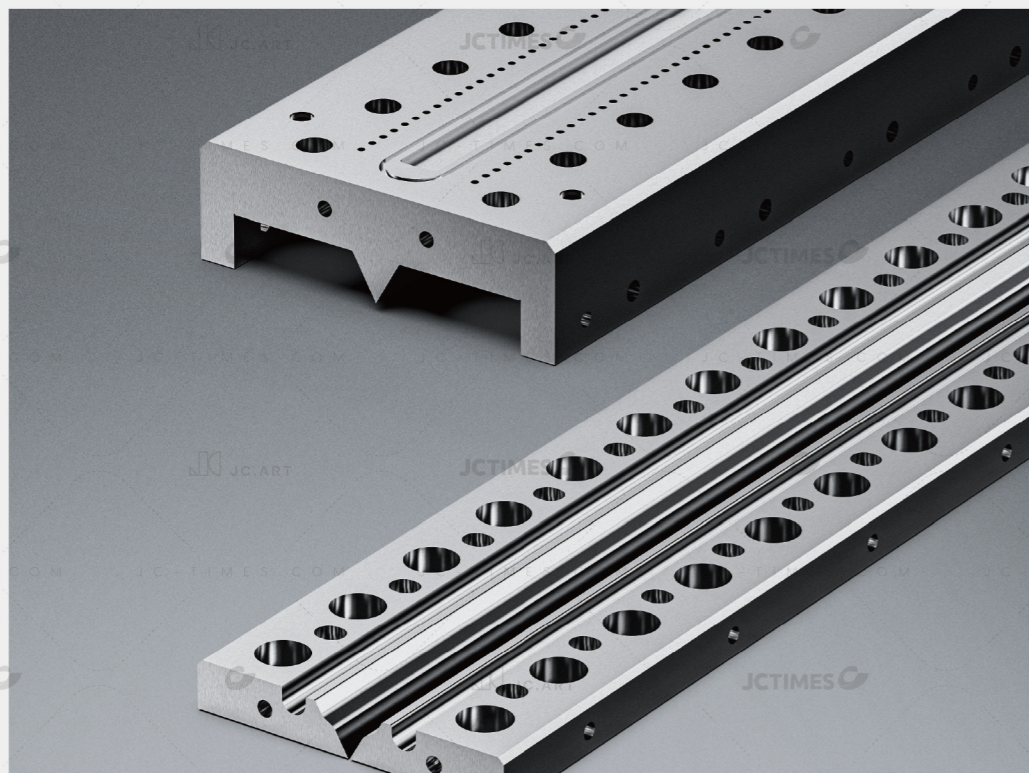
倾注匠心造就极致细节, 从模头设计验证、钢材质量把控、精密加工到智能化检测等, 力求在每一道工序中苛求无瑕, 为用户提供量身定制的解决方案。

# Spinnerets

The spinneret is a key forming part in the nonwoven production line, and its parameters such as pore size, pore spacing, L / D ratio and inner pore finish play a decisive role in the uniformity, fluffiness and grammage of the fiber. With  $\Phi 0.3$  microporous mainly, JCTimes has unique advantages in processing technology, electrical control system and temperature control of spinneret surface.

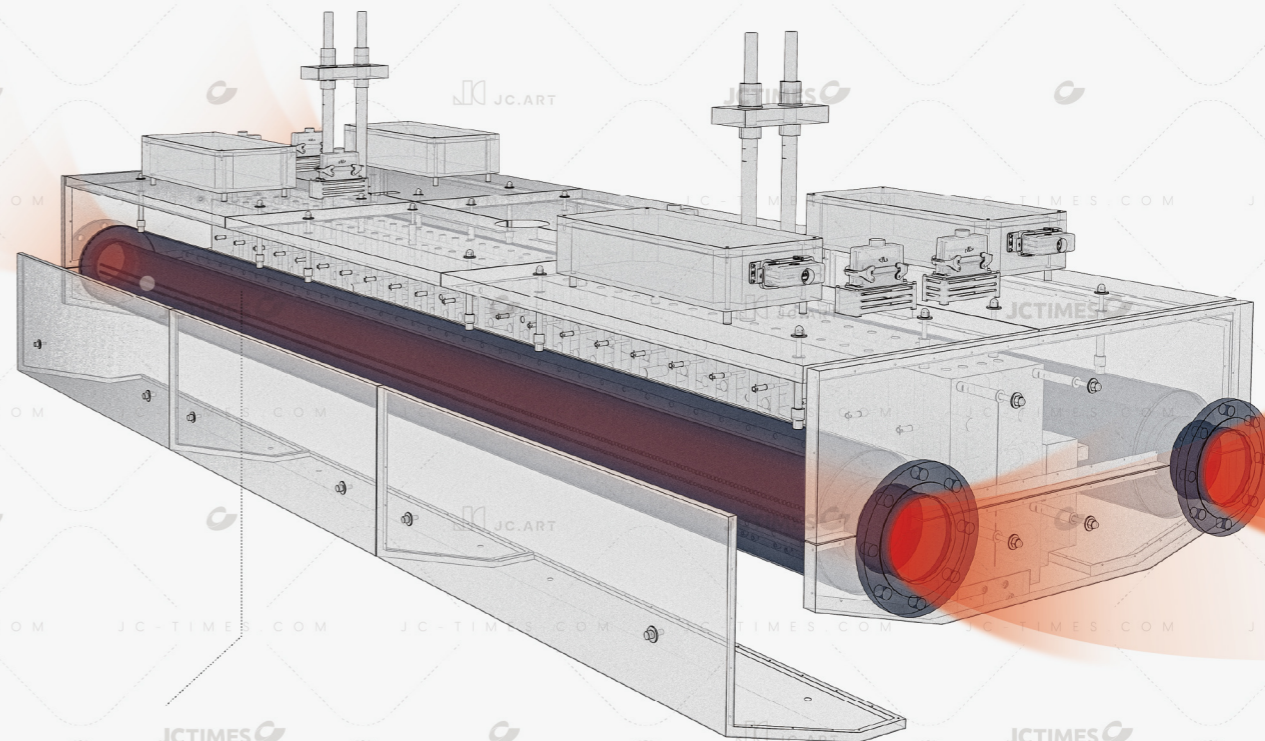
## 喷丝板

喷丝板是无纺布生产线中关键的成型部件，其孔径、孔距、长径比以及内孔光洁度等参数对纤维的均匀性、蓬松度和克重起着决定性作用。喷丝板的微孔直径以 $\Phi 0.3\text{mm}$ 为主，孔间距一般为 $0.5\text{-}1.0\text{mm}$ 。精诚在喷丝板的加工工艺、电气控制系统以及表面温度控制等方面拥有独到的技术优势。



# 36 Hot Air Drawing Device

Through professional airflow analysis software, calculations and validations of outlet velocity vector fields, temperature fields, and pressure fields are performed based on different input parameters such as airflow rates, temperatures, and pressures. High-speed heated air is then used to precisely stretch molten polymers into micron-scale fibers, achieving the flexibility required for the products.



Dual-Channel Design  
And Gradient Temperature Control Technology

双风道设计和梯度温度控制技术

## 热风牵伸装置

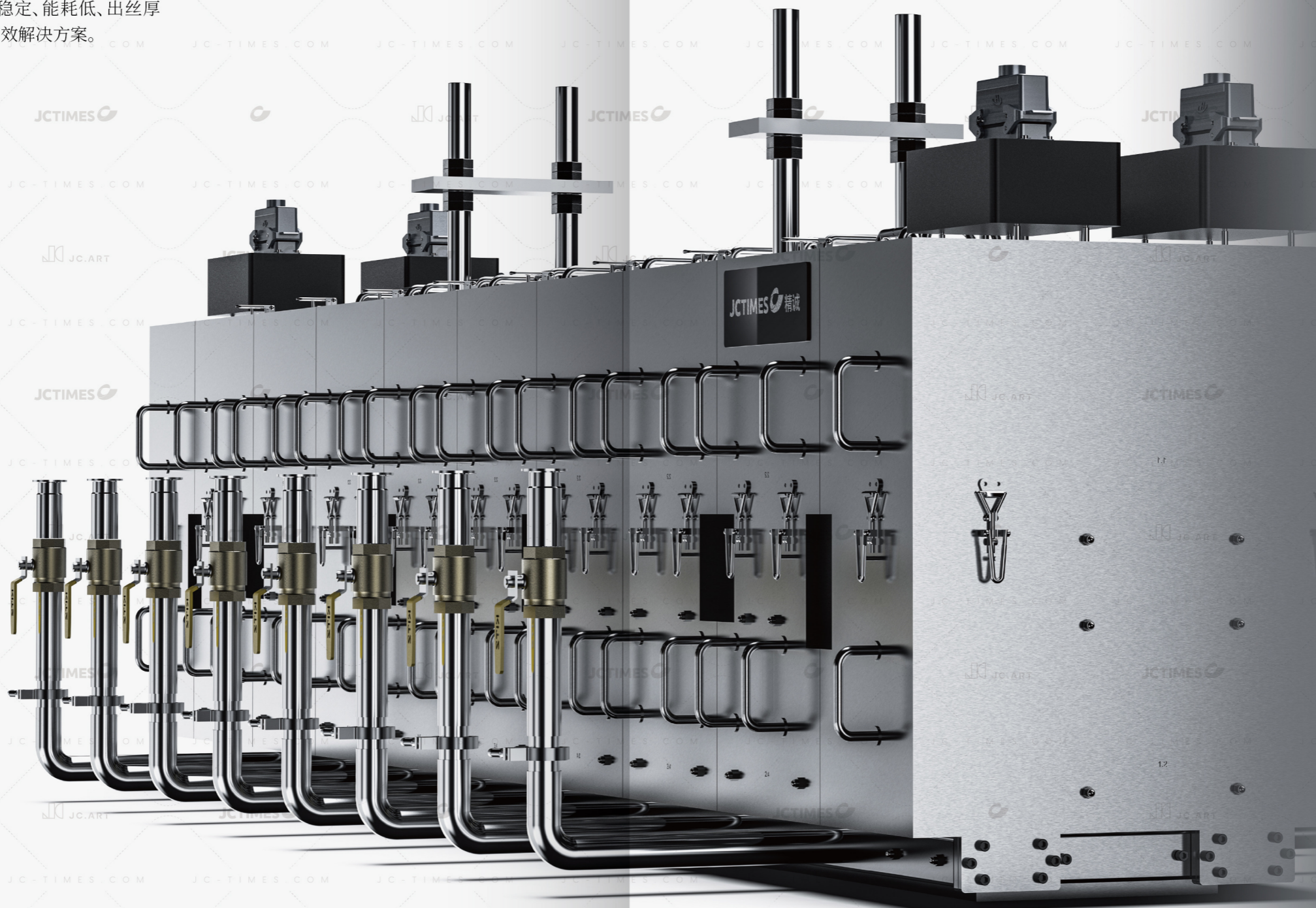
热风牵引装置采用，结合超音速气流与动态压力补偿，通过专业的风道分析软件，针对不同风量、温度、压力的输入参数，进行出口速度矢量场、温度场和压力场的计算与验证。利用高速热空气将熔融聚合物精确拉伸成微米级纤维，以实现制品的柔性化要求。

# 38 PET Spunbond Non-woven Dies

## PET纺粘 非织造布模头

独特管式分流熔体通道, 为行业提供便捷、稳定、能耗低、出丝厚薄均匀的高效解决方案。

Unique tubular melt distribution channels provide the industry with efficient solutions featuring convenience, stability, low energy consumption, and uniform fiber thickness.



# 40 Application Scenarios



Nonwovens bring many conveniences to quality life, in high-end functional medical isolation materials such as masks, surgical isolation clothing; soft cotton hygiene care such as diapers, wet wipes, face masks; and filtration and insulation materials, automotive interiors, New air system, etc. to play an innovative value.



非织造布为品质生活带来诸多便利, 在高端功能型医用隔离材料如口罩、手术隔离服; 柔棉卫生护理如纸尿裤、湿巾、面膜; 以及过滤保温材料、汽车内饰、新风系统等发挥创新价值。