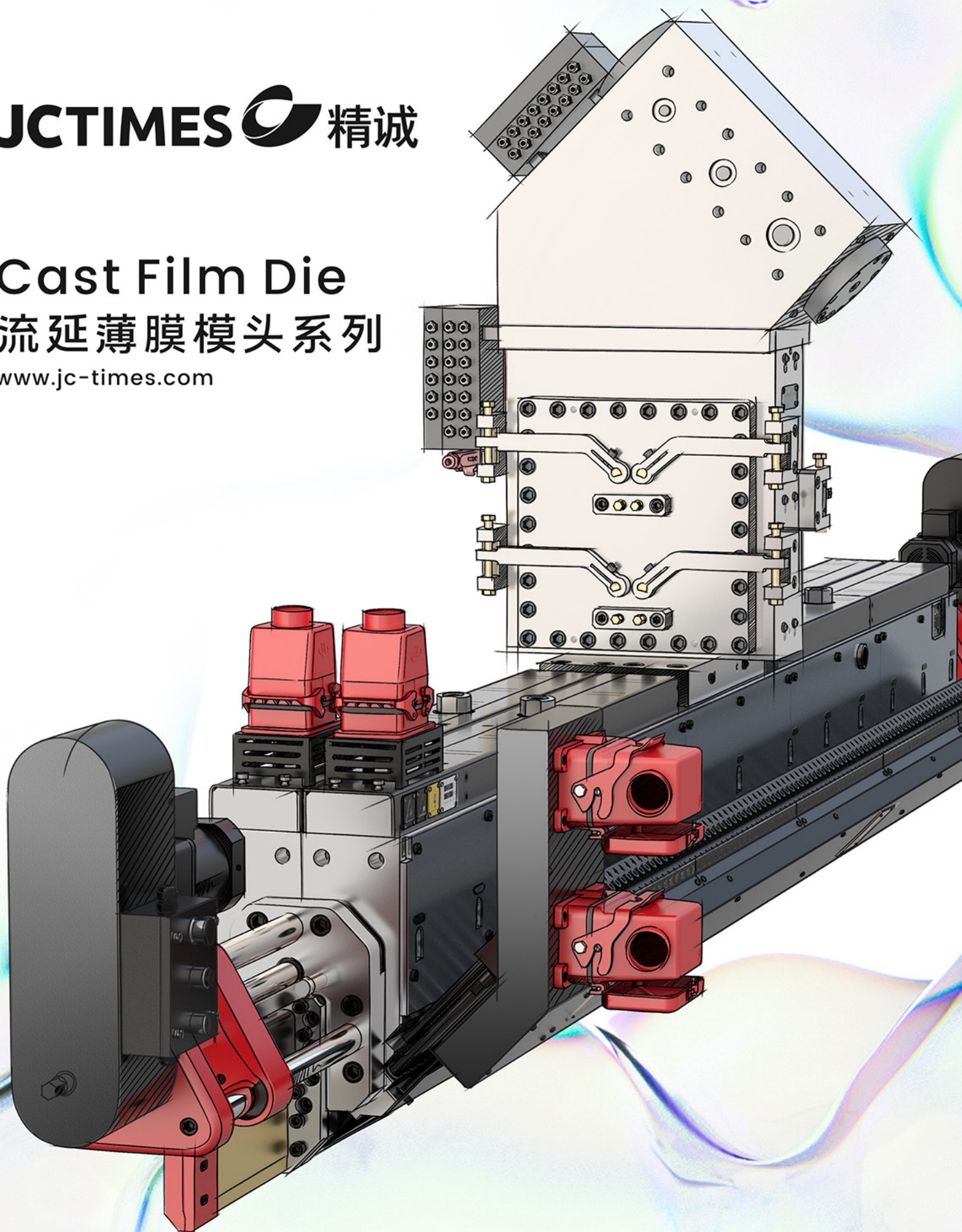


**JCTIMES**  **精诚**

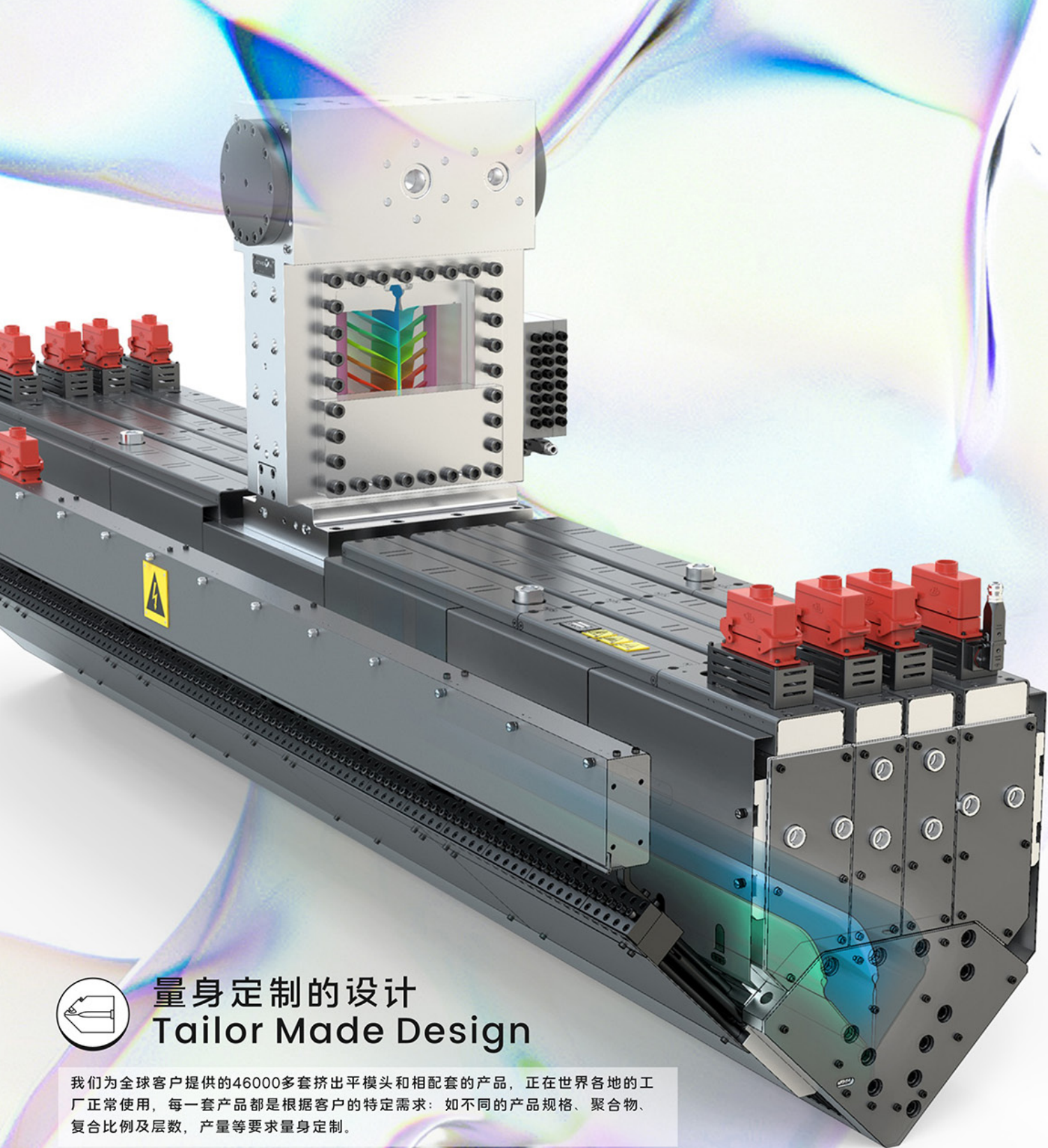
# Cast Film Die

## 流延薄膜模头系列

[www.jc-times.com](http://www.jc-times.com)







## 量身定制的设计 Tailor Made Design

我们为全球客户提供的46000多套挤出平模头和相配套的产品，正在世界各地的工厂正常使用，每一套产品都是根据客户的特定需求：如不同的产品规格、聚合物、复合比例及层数，产量等要求量身定制。

We have supplied more than 46000 sets of flat dies all over the world. Now most of them are serving to our customers properly and each of them is tailor made under the unique request of each customer. Such as the different specifications, raw materials, distribution percentage, output etc.



## 设计优势 / Design Advantage

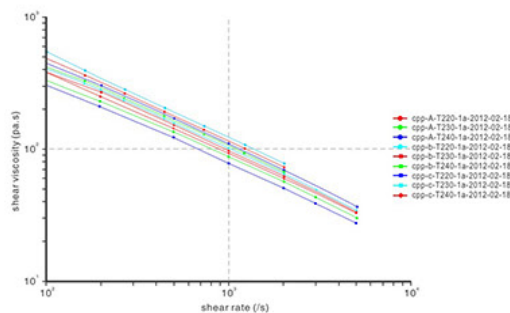
- ◆ 引进国际先进聚合物熔体流变分析仪，针对不同原材料进行流变分析结果测试，计算出原材料特性；
- ◆ 结合流道仿真分析系统，设计出最佳流道，达到模头生产最佳状态；
- ◆ 使用Siemens NX3D软件造型，并通过数据网络传输至数控化加工设备，真正实现无纸化的无缝对接。

- ◆ Use international advanced polymer melt rheological analyzer and test the rheological analysis result for different raw materials, to get the raw material characteristics.
- ◆ With the software (DIE FLOW) simulation and proper calculation, we have the design for the flow channel of our own, by which can achieve the best performance.
- ◆ With Siemens NX3D software model and ether net data connections, all drawings are digital transferred.



	Name	Status	Force (kN)	Speed (mm/min)	Shear rate (1/s)	Shear stress (kPa)	Shear viscosity (Pa.s)	Pressure (MPa)	Tdie (°C)
1	cpp-A-T220-1a-2012-02-18	OK	0.49	3.33	100	38.13	381.32	2.44	220.04
2	cpp-A-T220-1a-2012-02-18	OK	0.61	6.64	199.26	49.87	250.27	3.19	220.04
3	cpp-A-T220-1a-2012-02-18	OK	0.89	16.65	499.58	71.84	143.8	4.6	220.04
4	cpp-A-T220-1a-2012-02-18	OK	1.13	33.4	1001.93	93.22	93.04	5.97	220.04
5	cpp-A-T220-1a-2012-02-18	OK	1.47	66.88	2006.43	120.04	59.83	7.68	220.05
6	cpp-A-T220-1a-2012-02-18	OK	1.71	100.36	3010.72	139.14	46.21	8.9	220.05
7	cpp-A-T220-1a-2012-02-18	OK	2.07	167.34	5020.13	165.23	32.93	10.57	220.06
8	cpp-A-T230-1a-2012-02-18	OK	0.37	3.33	100	32.74	327.39	2.1	230.15
9	cpp-A-T230-1a-2012-02-18	OK	0.54	6.64	199.23	45.59	228.84	2.92	230.15
10	cpp-A-T230-1a-2012-02-18	OK	0.79	16.65	499.6	66.61	133.33	4.26	230.15
11	cpp-A-T230-1a-2012-02-18	OK	1.06	33.4	1001.87	87.83	87.66	5.62	230.13
12	cpp-A-T230-1a-2012-02-18	OK	1.41	66.89	2006.58	114.22	56.92	7.31	230.13
13	cpp-A-T230-1a-2012-02-18	OK	1.62	100.37	3010.96	130.69	43.43	8.36	230.13
14	cpp-A-T230-1a-2012-02-18	OK	1.91	167.34	5020.16	156.06	31.09	9.99	230.13
15	cpp-A-T240-1a-2012-02-18	OK	0.36	3.33	100	30.67	306.69	1.96	240.27
16	cpp-A-T240-1a-2012-02-18	OK	0.51	6.64	199.2	42.82	214.97	2.74	240.24
17	cpp-A-T240-1a-2012-02-18	OK	0.79	16.65	499.46	63.76	127.67	4.08	240.24
18	cpp-A-T240-1a-2012-02-18	OK	1.01	33.4	1002.02	82.65	82.49	5.29	240.22
19	cpp-A-T240-1a-2012-02-18	OK	1.31	66.88	2006.52	106.96	53.3	6.85	240.22
20	cpp-A-T240-1a-2012-02-18	OK	1.51	100.37	3011.02	123.86	41.14	7.93	240.22
21	cpp-A-T240-1a-2012-02-18	OK	1.76	167.34	5020.11	146.92	29.27	9.4	240.22

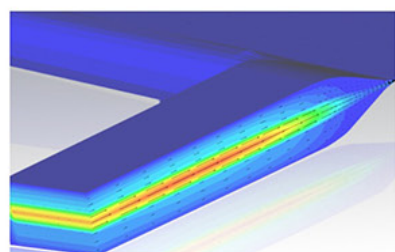
CPP-原料检测数据1 / CPP-raw material test data 1



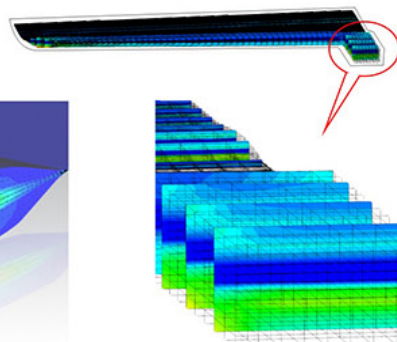
CPP-原料检测数据2 / CPP-raw material test data 2

根据客户提供的原料和生产的温度范围，测出每种原料剪切粘度与速率之间的数据关系。

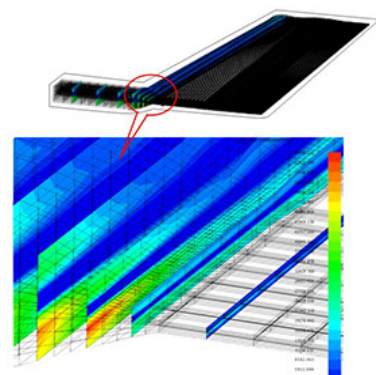
According to the raw material and the temperature range provided by customers, The relationship between the shear viscosity and the shear rate of each polymer can be concluded after testing.



入料口流速分布 / inlet velocity distribution



三层共挤-截面粘度分布-1 / 3-layer co-extrusion section viscosity distribution-1



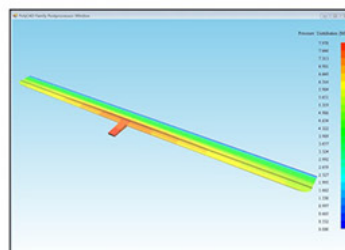
三层共挤-截面粘度分布-2 / 3-layer co-extrusion section viscosity distribution-2

通过分析各层原料在模头内的复合情况，进而调整分配器的分配比例，最终使各层料复合均匀。

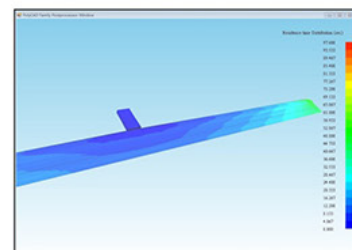
Through analysis of each layer's flow and composite situation, then adjust the percentage, to get the perfect distribution of each layer.

及时调整流道参数，使模头内部的压力、滞留时间、出料流速均达到理想状态。

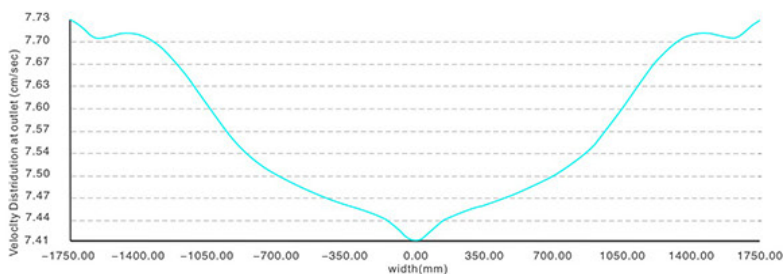
Adjust the flow channel design parameters in time to make the pressure inside of die body, residence time, material discharge speed reach ideal condition.



压力分布 / Pressure distribution



滞留时间 / Residence time



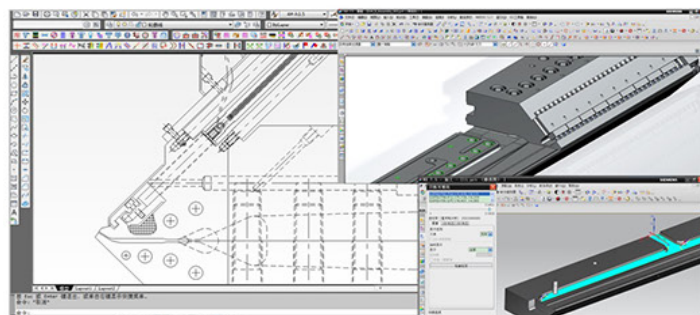
流出断面上流速分布曲线 / velocity distribution curve for discharge section

通过Die Flow软件模拟分析得到的理论数据，结合精诚46000套产品研制实际经验的数据支持，获得最佳的设计方案。

Combined with Die Flow software simulation analysis data and Jctimes' experience support which based on 46000 sets of die making, to get the best design proposal.

根据上述分析结果，设计出二维、三维图，以及数控编程，实现三位一体无缝对接。

According to above analysis result, working out 2D, 3D and NC programming, achieve the trinity seamless joint.







## 精密的加工制造 / Precision Manufacturing

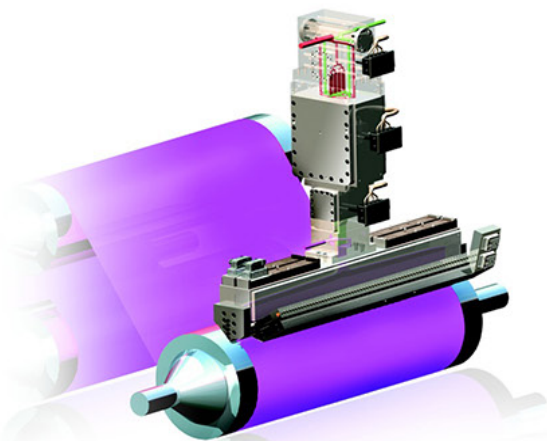


- ◆ 欧洲“一体式加工中心”，满足任意斜面和曲面的加工，主轴360度旋转，实现一次性加工成型，5米长度误差控制在 $\pm 3\mu\text{m}$ 之内；
- ◆ 采用优质钢材P20、2738、2316、USU420/630、5CrNiMo等合金钢；
- ◆ 表面处理运用镍合金、碳化钨、镀硬铬、纳米钻石合金处理等技术。铬层厚度0.02-0.05mm，表面硬度HV900-1000；
- ◆ 针对特殊高品质模唇要求，可选择碳化钨处理，模唇尖角R角可达到0.03mm；
- ◆ 工作经验在十年以上的技师，严苛把握每一个加工细节；
- ◆ 维氏硬度计、镀铬层测厚仪、光学级非接触式检测仪等国际一流的检测仪器，提供完美数据支持；
- ◆ KUNZ直线度检测仪，可快速、可靠、高精度地对模唇进行直线性检测。常规挤出模头一米误差 $\pm 0.02\text{mm}$ 以内，精密涂覆模头1米误差在 $\pm 0.002\text{mm}$ 以内。

- ◆ The machining centers are imported from Europe, they could satisfy all types of inclined surface and curved surface manufacture, the error within 5 meters length could be controlled under  $\pm 3\mu\text{m}$ .
- ◆ Alloy steel for the die body P20, 2738, 2316, USU420/630, 5CrNiMo.
- ◆ The Nickel-content alloys, tungsten carbide technology, Hard chromium plating chromium layer thickness will be 0.02mm to 0.05mm. The surface hardness will be Hv900- HV1000.
- ◆ Refer to the high level quality requested condition, we can use tungsten carbide technology for the surface treatment for a 0.03mm die lip angle.
- ◆ Ten years working experience engineers ensure that every details meet the quality standard.
- ◆ Vickers hardness tester, Chrome layer thickness gauge, Optical non-contact measuring instrument can provide all necessary data support.
- ◆ KUNZ straightness measurement tools will meet the high request for straightness measurement for die lip. The straightness error for normal die less than  $\pm 0.02\text{mm/m}$ , for precision coating die less than  $\pm 0.002\text{mm/m}$ .



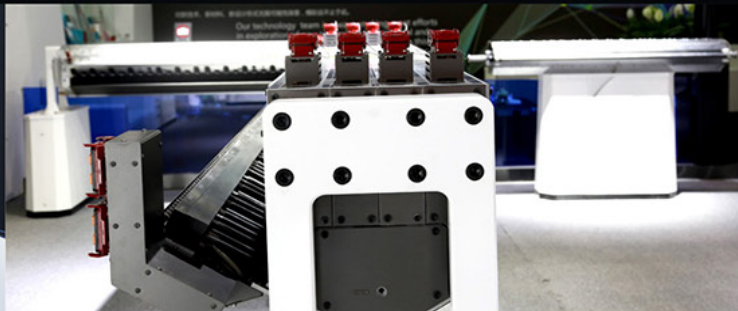
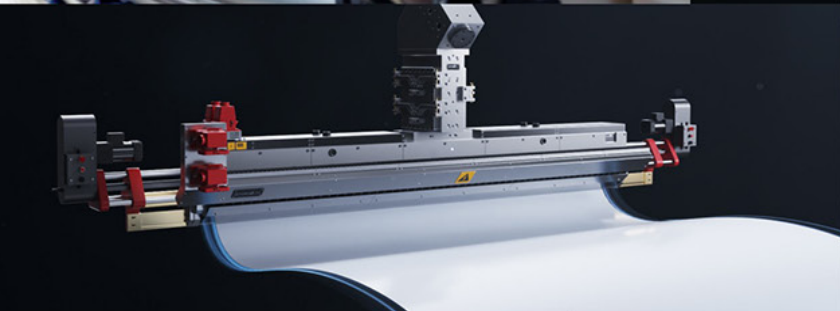




## 自动模头 / Automatic Die

- ◆ 自动调节系统根据实际使用情况，实时通过各膨胀螺栓进行自动微调，经测厚仪自动横向往返准确检测反馈数据。
- ◆ 膨胀螺栓与模体之间采用隔热装置，消除了模体与膨胀螺栓之间的热传导独立风冷却系统，优化响应速度，有利于低温或热敏性材料的生产。
- ◆ 快速有效地控制制品精度，精度可达 $\pm 1\%$ 。
- ◆ 可任意选配带内堵式宽度调节装置或外堵式宽度调节装置。

- ◆ The thermal expansion bolts can automatically fine adjust the lip gap in time, based on the feedback data from the thickness gauge. Automatic control for the product thickness by the expansion bolts.
- ◆ Use heating isolation system between thermal expansion bolts and die body, avoid the heat exchange between the thermal expansion bolts and the die body. Independent wind blow cooling system for fast response and good for low temp requirement or heat sensitive material producing.
- ◆ The precision of the final production can reach to  $\pm 1\%$ .
- ◆ Flexible choices for internal and external deckle system to adjust the product width.



## 产品参数 / Product Parameters

适用原料：几乎涵盖了所有聚合物如PP、PE、PC、PMMA、PET、EVA、ABS、PS、PA、PVC、PVB等。

产品规格：

最薄可生产 $0.5\mu\text{m}$ 薄膜，最宽 $10000\text{mm}$ 防水材料。通常CPP/CPE模头标准宽度： $2000\text{mm}$ 、 $2500\text{mm}$ 、 $3000\text{mm}$ 、 $4500\text{mm}$ 、 $5000\text{mm}$ 、 $5500\text{mm}$ 、 $6000\text{mm}$ ，或按客户需求任意订制。

Application material: PP、PE、PC、PMMA、PET、EVA、ABS、PS、PA、PVC、PVB

Production specification: The thinnest film can be  $0.5\mu\text{m}$ , the widest die can be  $10000\text{mm}$ . The standard width of CPP/CPE film:  $2000\text{mm}$ 、 $2500\text{mm}$ 、 $3000\text{mm}$ 、 $4500\text{mm}$ 、 $5000\text{mm}$ 、 $5500\text{mm}$ 、 $6000\text{mm}$ . Or design as customer request.



## 应用领域 / Application Area

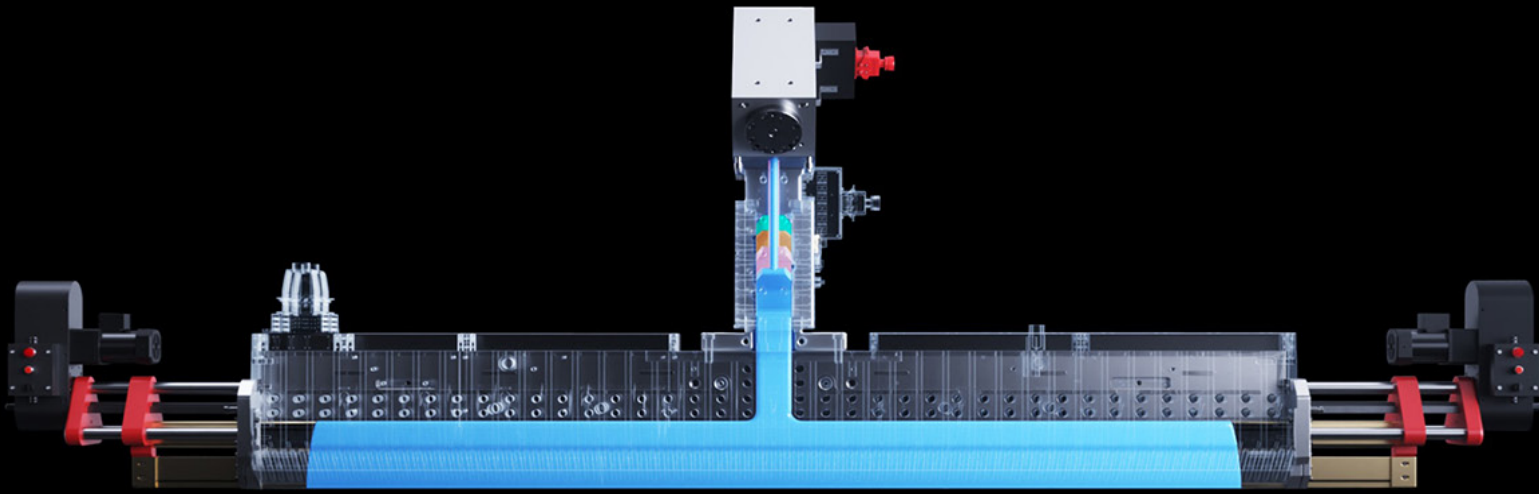
包装用复合膜、真空镀铝基膜、文具膜、蒸煮膜、高阻隔膜、拉伸缠绕膜、压纹膜等。

在卫生、医药、建筑、电子、电池、汽车等行业中广泛应用，产品涉及婴儿尿裤、医用保护用品、防护服、屋顶防护材料、透气性防水材料等。

Packaging composite membrane, Vacuum aluminum plating film, Stationery film, Membrane cooking, High barrier film, Stretch film and Embossed film.

Permeable membrane is widely used on health and medical area, construction and the automobile industry; the final productions include Baby diapers, Medical protective supplies, Protective clothing, Roof protective material and Breathable water-proof material.



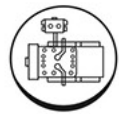
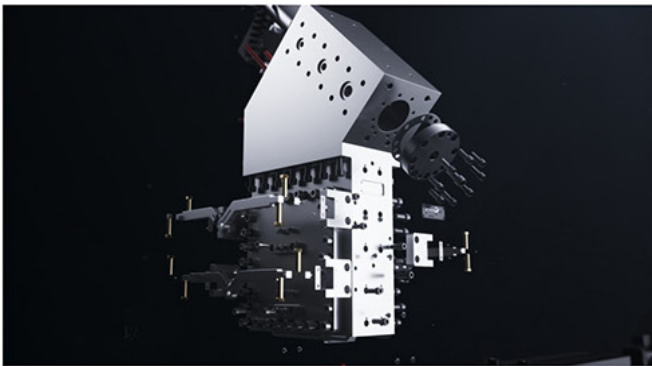
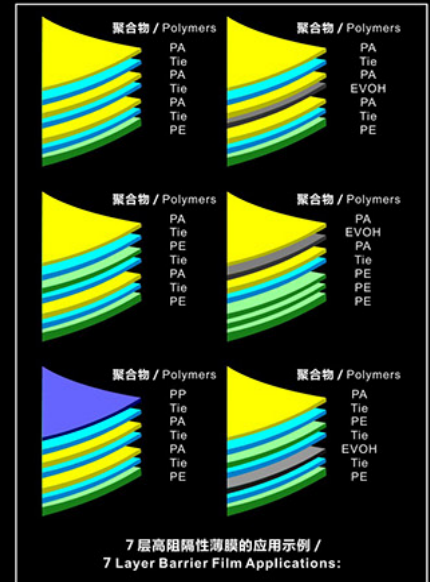


## 7层共挤高阻隔性流延薄膜模头 / 7-Layer Co-extrusion High Barrier Cast Film Die

多层共挤流延薄膜：利用多层共挤流延技术，在传统塑料膜的基础上加入了高功能化、阻隔性等元素，满足食品、医药、电子产品等行业对高阻隔薄膜的需求。

Thanks to the co-extrusion technology, traditional plastic film can be improved to be more functional, with high barrier property, which can meet requirement of the package of food, medicine, electronic products and other products

- ◆ 通过分配器的调节达到每一层薄膜厚度的均匀性、挤出量比例的可调性。
- ◆ 自动模头实现最高的加工灵活性、最短的产品规格切换时间。
- ◆ 独特的封边结构、包边设计可防止破边，从而实现节约原材料，降低生产成本。
- ◆ With the flexible adjustment of feed block, each layer's uniformity and percentage can be adjusted.
- ◆ The automatic die realized the perfect balance between flexible producing and production specification alteration.
- ◆ The unique edge seal structure and edge covered design could reduce the cost by saving more raw materials.



## 分配器 / Feed Block

分配器性能特点：

- ◆ 复合共挤表层比例可低至10%以下。
- ◆ 高效、方便的在线复合比例调节能力，不影响物料的流线型流动。
- ◆ 可以调节旋转组合轴，对各层料流分布、复合比例作精细调整，也可通过旋转轴的调整切断料流改变复合层的结构。
- ◆ 模块式组合式结构便于安装和清洗，能适用各种热敏性的物料。
- ◆ 可配合3层、5层、7层、9层分配器。

### Technical Feature:

- ◆ The surface layer percentage can be less than 10%.
- ◆ Efficiently and easily online adjust system for the percentage rate of every layer, no influence of the raw material linear flow.
- ◆ The melt flow distributions and rate on each layer can be fine adjusted by the rotary combined shaft, and also can adjust the product structure by block certain layer completely.
- ◆ Modular structure, easy to assemble and clean, applicable for all kinds of thermo sensitive raw material.
- ◆ Mono layer or multi layers: suitable for three, five, seven and nine layers feedblock.

