

We know how to produce the best pipes.  
Building a Greener and Healthy World with TaijiBlue PVC-O Pipe & Tech.

**BAOSU**  
建投宝塑

**TaijiBlue**

**太极蓝® PVC-O  
装备技术**

TaijiBlue® PVC-O Equipment Technology

**河北建投宝塑管业有限公司**

Hebei Construction & Investment Baosu Pipe Industry Co., Ltd.

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中国的宝塑 世界的太极蓝

China's Baosu World's TaijiBlue



## 宝塑简介

ABOUT BAOSU®

河北建投宝塑管业有限公司是由河北建设投资集团及从事塑料管道研发生产多年的行业专家共同创建的塑料管道行业高新技术企业。

作为ISO9001, ISO14001和ISO45001认证的国家高新技术企业、国家科技型中小企业和河北省“专精特新”中小企业, 2016年, 建投宝塑®以其卓越的创新力被中国轻工业联合会评为中国塑料管材行业十强企业。

建投宝塑®分为输水管道事业部、智能装备制造事业部、油气与热力管道事业部, 主要服务于供水输水、农业灌溉、太极蓝®PVC-O管道装备制造、油气输送、城镇供暖等领域。

建投宝塑®核心团队拥有数十年在塑料管道领域研究开发、生产运营、技术服务的经验, 是具备持续创新能力的优秀团队, 先后获得过三十多项具有自主知识产权的国家专利, 主持或参与制修订了二十多项国家及行业标准。

建投宝塑®将本着“用心做管, 诚实做人”的企业理念, 坚持“科学发展, 创新驱动”, 以引领中国塑料管道行业健康发展为己任, 努力工作, 用心做好管, 助行业做好管, 让客户用好管, 为建设人类美好生活和更加绿色的世界, 做出自己的贡献。

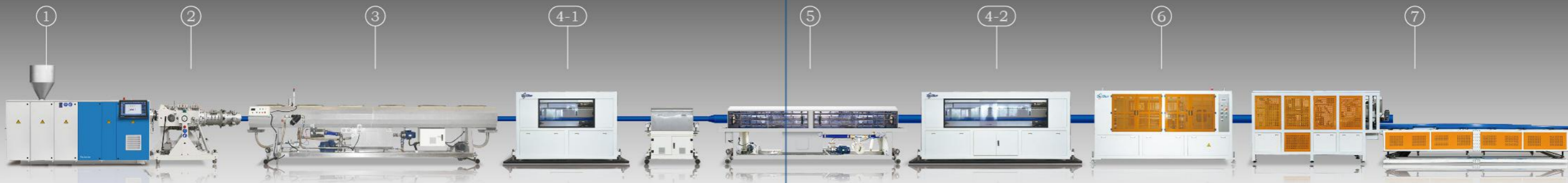
Hebei Construction & Investment Baosu Pipe Industry Co., Ltd. (Baosu®) is a high-tech enterprise in the plastic pipe industry, jointly established by Hebei Construction & Investment Group and industry experts engaged in R & D and production of plastic pipes for many years.

As a national high-tech enterprise, a national science and technology small and medium-sized enterprise and a Special Refined Characteristic and Innovative Small and medium-sized enterprise in Hebei Province, Baosu® is certificated by ISO9001, ISO14001 and ISO45001. In 2016, Baosu® was rated as one of the Top Ten Enterprises in China's Plastic Pipe Industry by China National Light Industry Council with its outstanding innovation ability.

Baosu® was divided into Water Pipe Division, Intelligent Equipment Manufacturing Division and Oil Gas and Heating Pipe Division, mainly serves in the fields of water supply and conveyance, agricultural irrigation, TaijiBlue® PVC-O pipe equipment manufacturing, oil and gas transportation and urban heating, etc.

The core team of Baosu® has decades of experience in research and development, production, operation and technical services in the field of plastic pipes. They are an excellent team with continuous innovation capability, who had won more than 30 national patents with independent intellectual property rights, and hosted or participated in more than 20 national and industry standards.

Baosu® adhere to the corporate philosophy of "Making Pipes with Our honest", "Developing Scientifically, Driven by Innovation", taking leading the development of China's plastic pipe industry as our own responsibility, "Concentrate on manufacturing high-quality pipes, Help the industry manufacture high-quality pipes, Let customers use correctly high-quality pipes", and work hard to make our contribution for a greener world.



## 装备简介

## Equipment Introduction

建投宝塑®拥有塑机装备研发专业团队和生产基地，致力于为全球塑料管道企业提供 TaijiBlue®PVC-O装备技术以及工厂设计建设咨询等服务。

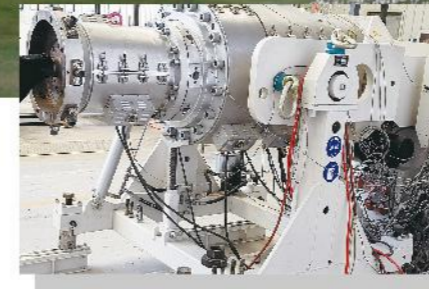
建投宝塑®在线一步法PVC-O生产工艺，以及PVC-O管材生产的核心装备全部是自主研发和制造，成为国际上成熟掌握此项技术的少数制造商之一，装备技术的取向水平达到或超过450级。TaijiBlue®PVC-O在线一步法工艺技术具有耗能低、效率高、尺寸稳定、管材长度灵活等优势。公司已经与国际知名塑料管道装备商开展战略合作，面向全球市场推出 TaijiBlue®PVC-O挤出装备和技术。



Baosu® has a professional R&D team and production base for plastic machinery equipment, committed to provide TaijiBlue®PVC-O equipment & technology, consulting services for plant design and construction for global plastic pipeline enterprises.

The online one-step process for the production of PVC-O pipes and the core equipment for the production of PVC-O pipes is independently developed and manufactured by Baosu®. And now Baosu® has already become one of the few manufacturers who have mastered this technology in the world. And the orientation level of Baosu® equipment and technology has reached or even excelled the 450 Class. TaijiBlue®PVC-O online one-step processing technology has the advantages of low energy consumption, high efficiency, stable size and flexible pipe length. Baosu® has developed strategic cooperation with an international well-known plastic pipe equipment company, to introduce the TaijiBlue®PVC-O core equipment and technology to the global market.





## 装备特点/优势 / Equipment Features/Advantages

建投宝塑在生产实践中善于发现设备存在的不足/缺陷，经过不断的设备改造，再生产调试、通过验收、总结经验，最终研发出太极蓝®PVC-O装备技术。

由于太极蓝®PVC-O装备技术是由设备的使用者——管道生产商研发的，所以具备以下一般纯机械设备供应商所不具有的优势：

- 1、操作更便利，几十年的管道挤出加工经验，从操作者的角度解决问题，设计人性化，符合作业习惯；
- 2、更节能环保，对生产流程的各环节了如指掌，大幅节能；
- 3、生产效率更高，拥有自主知识产权核心设备，挤出效率高，用人更少；
- 4、合格率高，实现智能控制，多参数监控、集中管理，产品质量有保障，稳定性高。

Based on the production practice, Baosu® could easily find defects of equipment may have. And after continuous modification to the equipment, reproduction, commissioning, acceptance, and organizing conclusion, finally Baosu® developed the TaijiBlue® PVC-O Equipment and Tech.

As Baosu® is a user of these equipment and also a manufacturer of pipes, so the TaijiBlue® PVC-O Equipment and Tech enjoys advantages which other general equipment suppliers don't equipped with.

- 1.Thanks to decades of experience of pipe processing and extrusion, Baosu® prefer to handle from operators' perspective. The operation is more convenient, the design is more humane, and it conforms to the working habits.
- 2.Enormous energy efficiency and environmental-friendly, thanks to Baosu®' s thorough knowledge on every step of the manufacturing process.
- 3.Higher production efficiency and extrusion efficiency, and fewer operators, thanks to the core equipment of independent property right.
- 4.Through intelligent control, and multi-parameter monitoring and centralized management. The eligible rate of the pipes is high, reliable and stable.

## 装备配置方案

### Equipment Configuration



序号 No.	装备型号 Line Type	挤出机型号 Extruder Type	直径范围 Diameter Scope	生产线长度 Total Length
1	TaijiBlue®250	KMD 63K	110~250	55m
2	TaijiBlue®315	KMD 75-36	200~315	60m
3	TaijiBlue®400	KMD 90-36	250~400	60m
4	TaijiBlue®500	KMD 90-36	315~500	70m
5	TaijiBlue®630	KMD 108-36	400~630	75m

## 装备描述

### Equipment Description

#### 1) 挤出机

优势：

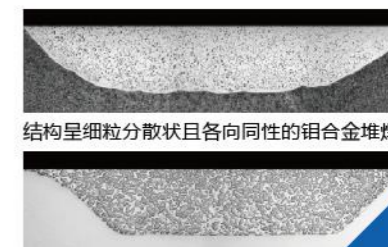
- 内冷螺杆和风冷机筒降低维护成本
- 可靠的排气
- 宽广的加工窗口可适应不同配方的原料
- 加工单元使用寿命的延长提高经济性
- 高产出率和完美的制品质量
- 优异的性价比



#### 1) Extruder

Advantage :

- Low maintenance costs thanks to internally heat-balanced screws and air-cooled barrels
- Safe degassing
- Larger processing range of different formulations and materials thanks to wider processing window
- Increased cost-efficiency thanks to a longer service life of the processing unit
- Higher output rate with perfect product quality
- Excellent price-performance



结构呈细粒分散状且各向同性的铝合金堆焊

碳化物分布均匀且各向同性的碳化钨堆焊

36D 双螺杆挤出机 — 高产出率和高品质的完美结合

36D 系列平行双螺杆挤出机专门为 PVC 管材挤出而设计，宽广的制品加工平台采用模块化的设计理念，它可以为您量身定制出极具价格竞争力的产品解决方案和高性能的管材挤出。

36D Twin Screw Extruder – Perfect Combination of High Output Rate and High Quality  
36D Parallel Twin Screw Extruder are designed for PVC pipe extrusion. With modular design concept and wide process window, it could customize price-competitive product solutions and provide high efficiency pipe extrusion.

## 2) 机头

宝塑与国际知名塑料管道装备商合作，可提供多种规格的专用机头以满足PVC-O管材的生产。

专用模头具备的优势：

- 高品质、高稳定的管材挤出
- 宽广的加工窗口
- 良好的熔体分配所带来的精确壁厚公差
- 宽广的管材尺寸覆盖范围
- 易于拆装的模头保证了生产的快速恢复
- 紧凑的设计
- 高投资回报

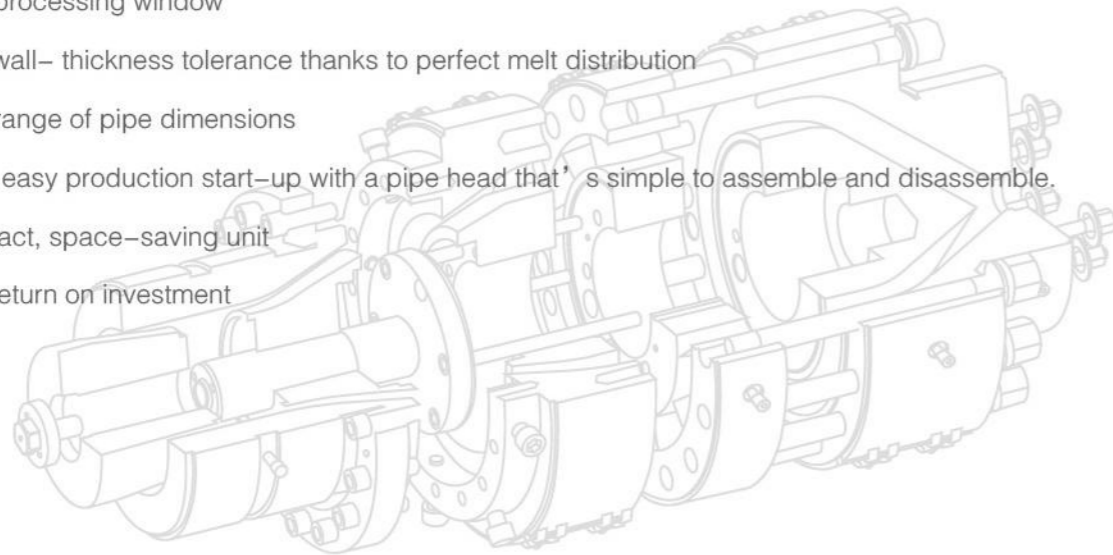


## 2) Die Head

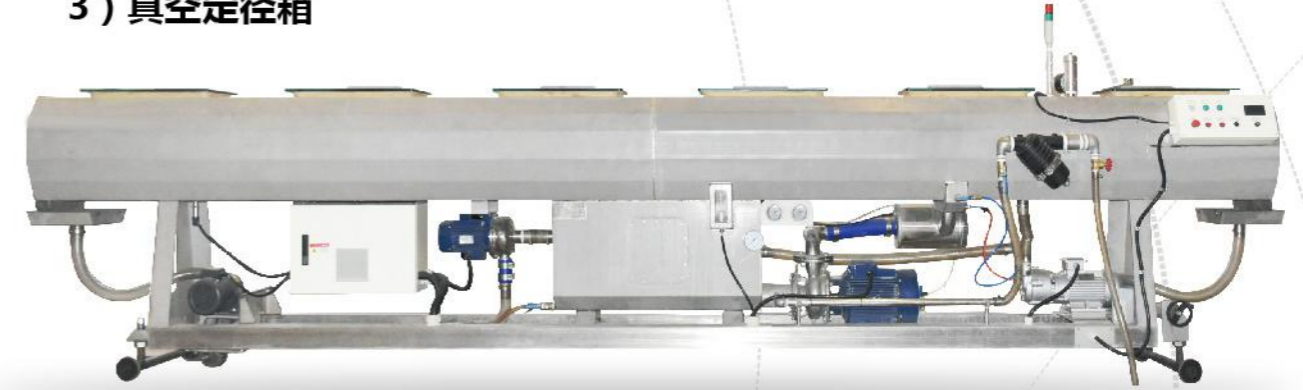
Cooperate with an international well-known plastic pipe equipment company, special die heads of multiple specification are available for customers to manufacture PVC-O pipe.

The advantages of these special die heads:

- Perfect pipe quality and a stable, reliable process
- Wide processing window
- Tight wall- thickness tolerance thanks to perfect melt distribution
- Wide range of pipe dimensions
- Quick easy production start-up with a pipe head that's simple to assemble and disassemble.
- Compact, space-saving unit
- High return on investment



## 3) 真空定径箱



真空定径箱对温度、真空度和冷却水量可以做到精准控制，提高生产过程的工艺精度和控制能力。

箱体可以上下、左右、前后调节，便于调节至与模具出口同心。前后移动距离大，更换模具方便、快捷。

- 真空泵采用变频控制，方便、节能，最大真空度可达 - 0.08MPa.
- 设计有冷却水温度控制装置，可快速达到工艺要求。
- 箱体顶部有多个带有橡胶密封条的加厚钢化玻璃观察窗，密封良好，可观察管材状态和冷却情况。
- 管材支撑采取尼龙托板，根据坯管尺寸有不同的规格。
- 根据工艺要求，有一室真空和二室真空两种配置。

## 3) Vacuum Calibrating Cooling Tank

Higher process accuracy and control ability thanks to the precise control of the temperature, degree of vacuum and cooling water quantity of the Vacuum Calibrating Cooling Tank.

The tank could be adjust upward and downward, forward and backward and right and left, so as to harmonize the Tank and outlet of the mould to concentric. Convenient and quick mould change, thanks to the large moveable space for the front and rear of the equipment.

- The vacuum pump apply variable frequency control which is convenient and energy-saving, the maximum degree of vacuum of the Tank is -0.08 MPa.
- Equipped with temperature control device of the cooling water, the Tank could quickly meet the technological requirements.
- Good sealing thanks to the multiple thickened tempered glass observation windows with sealing rubber inserts on the top, to observe the status of the pipe and the cooling process.
- Pipe support is done with nylon disks, different specification with different basic pipe.
- According to technological requirements, both one or two vacuum chamber are available. (optional)



#### 4) 喷淋冷却箱

- 箱体采用304不锈钢材质，整板折弯。
- 冷却箱冷却水量可调节。
- 托辊更换方便、快捷。
- 两侧的箱体门可以自由推拉，方便操作者在箱体外调整冷却管位置，水泵启动后，箱体门可快速关闭。
- 设计有水平和垂直方向的校圆装置，可快速调整管材的不圆度。
- 设计有托辊高度和箱体高度可调节装置，可快速调整管材的弯曲度。
- 箱体固定在光滑轨道上，配备牢固的锁紧装置，可实现快速前后移动和固定。

#### 4) Spraying Cooling Tank

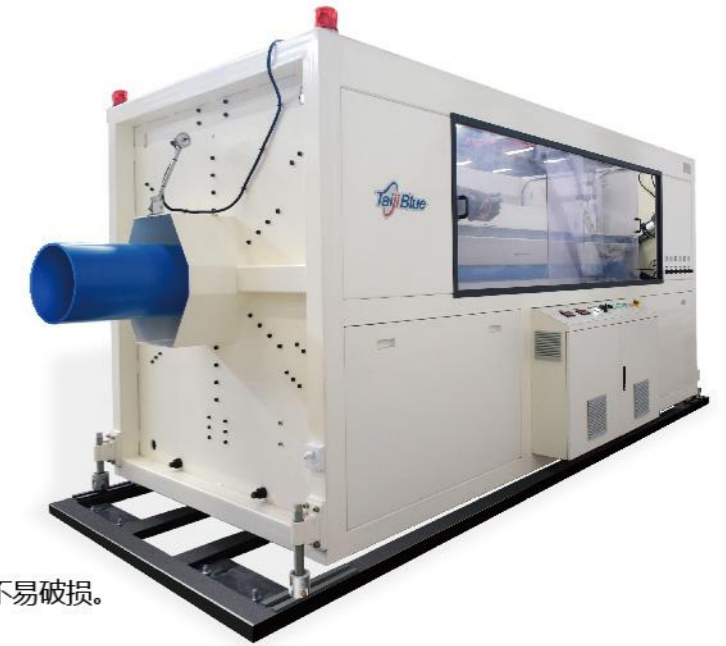
- The tank body is manufactured by bending a whole plate of 304 stainless steel.
- The volume of cooling water could be adjusted.
- Convenient and quick to assemble and disassemble the rollers .
- The doors of both side of the tank could be opened by pushing and pulling freely. The operators could adjust the position of the cooled pipe from outside the tank. After the water pump is started, the doors of the tank could close quickly.
- Quick out-of-roundness modification thanks to the concentric calibrating device on both horizontal and vertical direction.
- Quick tortuosity modification thanks to the roller and tank body calibrating adjustment device.
- Equipped with firm locking device, the tank is fixed on smooth tracks to realize forward and backward movement and fixing.

#### 5) 履带式牵引机

牵引履带由伺服电机单独控制，每条履带输出均衡，牵引速度稳定，牵引力稳定。高低速下均能获得恒转矩。保证管材尺寸和形状稳定。

设计有牵引力值监测装置，并具有拉力过载报警保护功能，可实时监测设备运转状态，调整工艺参数，保护设备安全。

- 履带胶块耐磨性高，表面摩擦力大，不易破损。
- 计长稳定、准确。
- 设计有固定底座，底座为整体焊制金属框架，设备稳固性好。
- 设计有牵引力值及速度存储功能，便于数据分析和生产控制管理。



#### 5) Haul Offs

The tracks of the Haul Offs are respectively controlled by servo motors. The output of each track is even. Traction force and speed is steady. The constant torque could be acquired at both high and low speed. Ensuring the reliable size and shapes of the pipes.

Equipped with traction force value monitoring device and pulling force overload alarm protection function, the haul offs could track the running condition of the equipment in real-time, to adjust process parameter and to secure the safety of the equipment.

- Large friction on the surface of the wear-resistance rubber block on the track which is not easily broken and damaged.
- Steady and accurate length-counting.
- The equipment is stable with the firm base of the haul offs which is a integral welded metal frame base.
- For a more convenient analysis of data and control of production management, the traction value and speed storage function is applied.



## 6) 切割机

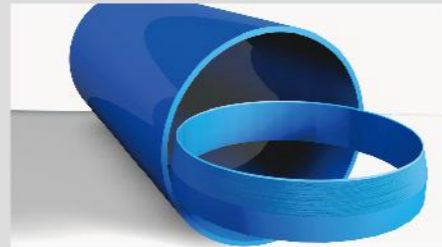
倒角装置独特设计，最薄可切割壁厚2.0mm的管材，倒角角度12~15°，管材端部倒角尺寸均匀规范。

- 自动、手动两种操作模式。
- 锯箱结构独特设计，不外泄粉尘，符合环保要求。
- 切割过程噪声低。
- 可定长切割，参数在线设定。
- 优选的切割片型号和质量，保证切割截面质量，延长设备使用寿命。
- 切割速度与管材移动速度协调，延长刀具使用寿命。

## 6) Cutting Machine

The chamfer size of the end of the pipe is uniform and even thanks to its unique design. The thinnest applicable specification is the pipe which wall thickness is 2.0 mm. The chamfer angle is 12~ 15° .

- Both automatic and manual operation mode are available.
- No swarf leaked out thanks to the special design of the saw box, and it' s confirm with the environment standard.
- Low noise during cutting
- Fixed-length cutting is available. The parameters could be set online.
- Supreme quality and type of the cutting piece to ensure the quality of cutting cross section and prolong the lifetime of the equipment
- Harmonize the speed of cutting and the movement speed of the pipe, to prolong the lifetime of the cutting tools.



## 7) 扩口机

- 设计有数据存储和工艺参数设定功能，不同规格管材产品可调取不同工艺。
- 自动、手动两种操作模式。
- 设计有故障报警，警报不解除，设备不动作。
- 扩口模式分“PVC-O管材”和“PVC-U管材”模式，可自由切换。
- 本机与挤出生产线同轴或平行划分四大工位，分别为：挤出轴、加热轴、扩口轴和铣口轴：
  - 挤出轴传送平稳，速度恒定；
  - 加热轴温控精确、加热均衡，速度快；
  - 扩口轴传送平稳，轴向定位精准，成型部位尺寸稳定；
  - 铣口轴不产生碎屑、粉尘，噪声小。
- 装置特殊设计，使管材不发生轴向位移。
- 使用大界面触摸屏，功能齐全，操控简单。
- 本机自动化程度高，劳动强度低。



## 7) Belling Machine

- Equipped with data storage and processing parameter setting function, the belling machine could adjust corresponding process for different pipe specification.
- Both automatic and manual operation mode are available.
- Equipment possess fault alarm setting. Unless the alarm is released, the equipment will not work.
- Both PVC-O Pipe Belling mode and PVC-U Pipe Belling Mode is available.
- Co-axially or in parallel, the belling machine possess 4 processing position, as following:
  - Extrusion Position: steady and stable transfer and speed.
  - Heating Position: accurate temperature control, quick, even and balanced heating.
  - Belling Position: steady transfer, precise axial positioning, and standardized specification of the formed parts.
  - Milling Position: no swarf nor noise.
- Deny axial displacement of the pipes by special design.
- Large multifunctional touch screen which is easy to operate.
- High automation and low labor intensity.





## 服务 / Services

### 装备技术服务

售前服务：厂房规划、产品设计、装备选型。

售中服务：全方位培训、安装、调试、运转、验收（设备和生产）等服务。

售后服务：解决服务期内出现的机械配件问题和生产技术问题，为客户提供技术支持。

### Equipment Technical Services

PRE-SALE SERVICE: Plant planning, product design, configuration selection.

IN-SALES SERVICE: All-round training, installation, commissioning, operation, acceptance (equipment and products) and other services.

AFTER-SALE SERVICE: Solve the problems of mechanical accessories and production technology during the service period, provide technical support to customers.



## 案例 / Case

### 天原集团PVC-O管材生产线采购项目

Tianyuan Group PVC-O Pipe Production Line Procurement Project



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