

# 太空灰3D建筑打印 项目介绍

Space gray 3D building printing  
project introduction

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解决现场打印、3D曲面打印、支撑材料等世界性难题  
Field print, 3D surface printing, support materials  
and other world problems

河南太空灰 3D 建筑打印团队  
Henan space grey 3D building printing team

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# 产品 Products

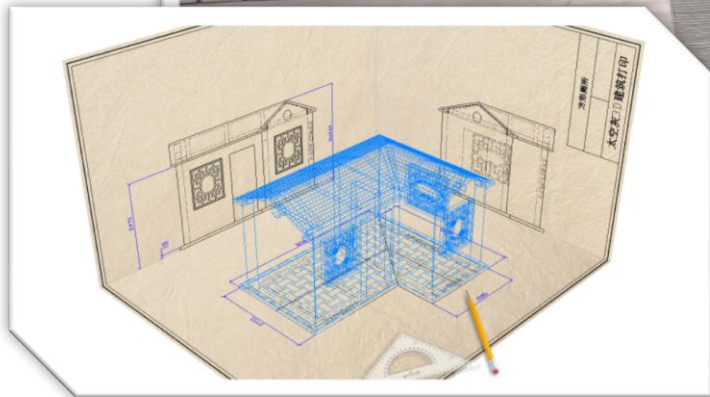
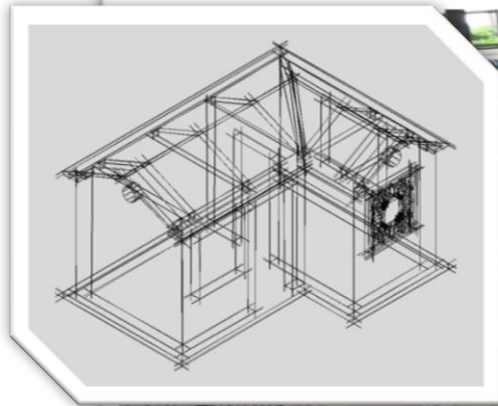


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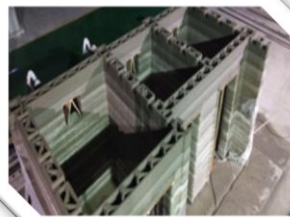
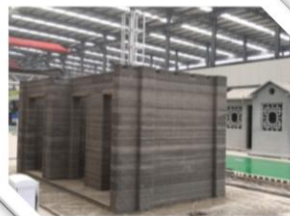
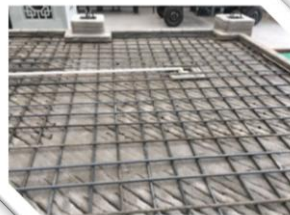
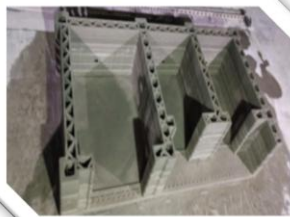




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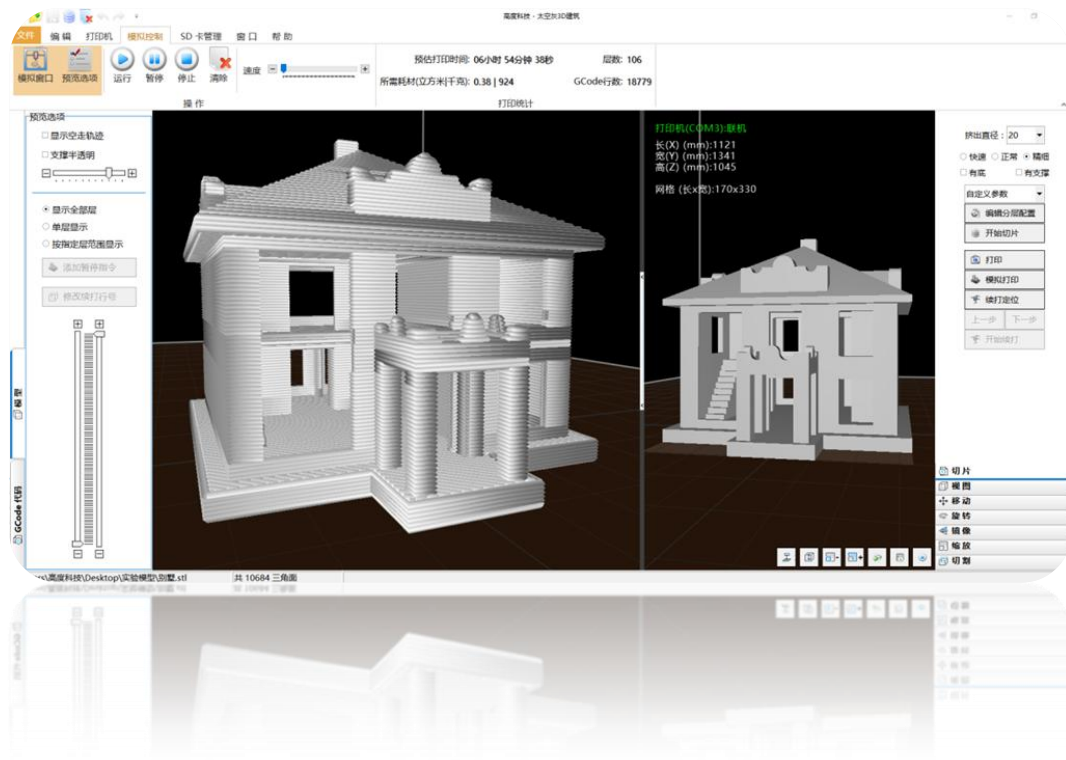


# 项目亮点 Project highlights

## 3D建筑打印解决方案 Solution

实现了现场打印、3D曲面打印、支撑材料、整体打印等世界性难题，自主研发达到世界顶级水平。

Field printing, 3D surface printing, supporting materials, Whole printing and other world problems, independent research and development, to reach the world's top level



# 项目亮点 Project highlights

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1

运用3D打印技术，随时随地打印建筑产品

Use 3D printing technology to print building products anytime and anywhere

2

拥有着国内首家自主研发的 3D 建筑打印控制程序，并自主研发大型建筑打印机，以及自主研发的打印材料和支撑材料  
Has the first domestic self-developed 3D printing control program , and independent research and development of large construction printers, as well as self-developed printing materials and support materials

3

实现3D曲面打印和现场打印，适用于有着特殊工艺、特殊地形、特殊要求的建筑、雕塑和装修装饰作品  
3D surface printing and field printing, suitable for special construction, sculpture and decoration works with special technology, special terrain and special requirements

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# 项目亮点 Project highlights

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## 高度适应环境 Highly adaptive environment

可以根据社会需要量身定制产品；由于是整体结构成形，建筑抗震性能大大增强；可以适应恶劣环境，如在高原、雪山、沙漠、海洋、甚至外星球等人为施工条件极其恶劣的环境下进行施工建造。

Can be tailored according to the needs of society products; as is the overall structure forming, the seismic performance of buildings is greatly enhanced; can adapt to the harsh environment, such as in the plateau, mountains, deserts, oceans, and even the planet such as the harsh construction environment construction.



## 节省劳动力 Labor saving

无需人工干预，意味着建筑行业伤亡事故风险的大幅减少，大量节省人员劳工，且用于建筑施工的安全措施费降低。

Without human intervention, it means a significant reduction in the risk of casualty accidents in the construction industry, A large number of personnel and workers are saved, and the safety measures for construction are reduced.



## 绿色环保 Green environmental protection

建筑废料作为建筑材料再利用，降低建筑粉尘污染，减少雾霾，保护环境实现绿色环保。  
Construction waste as a building material reuse, reduce construction dust pollution, reduce haze, protect the environment and achieve green environmental protection.



## 节约建筑成本 Saving construction cost

采用3D打印技术，可节约建筑材料，工期缩短，节约人工，整体建筑材料成本至少节省50%以上。

3D printing technology can save construction materials, shorten the construction period, save labor, and at least save more than 50% of the cost of building materials.

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# 团队介绍 Team Introduction



创始人  
Founder

何建伟  
HeJianwei

13253363780

毕业于武汉理工大学，机械设计与制造专业

曾任同创电脑（南京）技术总监；曾任北大方正科技（河南）技术总监；

曾任河南悉诺集团总经理；

二七区、金水区政府招标技术专家；

高度科技GPS软硬件项目总负责人；

现从事3D建筑打印技术产品研发、管理工作。

Graduated from Wuhan University of Technology, major in mechanical design and manufacturing served as director of computer (Nanjing) technology, and served as technical director of BEIDA Founder Technology (Henan);

Former Henan Sino group general manager;

Zhengzhou ErQi District JinShui District government tender technical experts;

High technology GPS software and hardware project leader;

Now engaged in 3D building printing technology, product development, management.

2001年开办郑州合众励志公司，从事大型软件开发、互联网集成 等方向软件开发，为客户提供一体化解决方案，相继制作过城市管理系统、电子政务管理系统（OA）、视频点播管理系统（VOD）、医院综合管理系统、GPS 卫星定位系统等。

其中GPS卫星定位系统项目在2009年时，代理商达到120家，客户覆盖全国包括邯郸钢铁、新飞集团、青岛正大，贵阳北极星，安徽电力等，**盈利上千万**。

Opened in 2001, the Zhengzhou Uniwill Company, engaged in large-scale software development, Internet integration direction of software development, to provide integrated solutions for customers, have made the city management system, e-government management system (OA), VOD management system (VOD), the hospital management system, GPS satellite positioning system.

The GPS satellite positioning system project in 2009, the agent reached 120, customers across the country including Handan iron and Steel Group, Frestech group, Qingdao Zhengda, Guiyang Polaris, Anhui electric power, tens of millions of profit.

# 核心团队成員 Major team members



庞立南  
Pang Linan

河南汇科电子有限公司高级工程师、河南高度科技有限公司软件工程师，河南高度GPS定位系统研发、全国基站建立及维护，多年项目开发及项目管理经验。

Senior engineer, Henan Huike Electron Co. Ltd of Henan High Technology Co. Ltd. software engineer, the establishment of Henan height GPS positioning system development, and maintain the national base, years of project development and project management experience.



仝东海  
Tong Donghai

河南汇科电子有限公司技术总监、河南高度科技有限公司技术工程师  
主导参与多个管理信息系统开发与研制，多年运营及项目总监经验。

Henan Branch Electronics Co., Ltd., director of technology, Henan High Technology Co., Ltd. technical engineers Lead and participate in the development and development of multiple management information systems, years of operations and project director experience.



毛国锋  
Mao Guofeng

郑州金财软件有限公司技术总监、河南高度科技程序开发测试工程师  
参与研发多个信息管理系统，多年市场VP等职位经验。

Zhengzhou golden wealth Software Co., Ltd. technical director, Henan high science and technology program development and Testing Engineer Participate in R & D of multiple information management systems, years of experience in marketing, VP, etc..

# 产品和服务 Products and services

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大型3D建筑打印机、打印材料供应、专业 3D 打印程序、打印工艺培训  
Large 3D building printer, printing material supply, professional 3D  
printing program, printing process training

3D建筑打印项目涵盖的软件操作系统，机械硬件及材料均为自主研发，拥有100%的自主权，3D建筑整体打印，内部结构根据需求结合结构力学等原理做到最优化，无需拼装。

The software operating system 3D construction project covers the printing machinery, hardware and materials are developed, autonomy has 100%, the whole building 3D printing, according to the needs of the internal structure of combining structural mechanics principle to do optimization, without assembling.

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# 产品和服务 Products and services

## 太空灰 3D建筑打印 三大特点

Three characteristics

### 3D曲面打印 3D surface printing

方圆有度 3D 建筑打印适用于景观造型、装修装饰、特殊建筑等方面的需求，实现了更多艺术展现可能性和满足更多个性化展示需求。

Space gray 3D building printing applies to landscape modeling, decoration, decoration, special construction and other aspects of the demand, to achieve more art possibilities and meet the needs of more personalized display.

### 现场打印 Field printing

现场打印是 3D 建筑打印中的终极梦想。

Field printing is the ultimate dream of 3D building print.

### 打印材料 Print material

使用成本低廉的普通环保材料进行打印，并配有独创的支撑材料进行多功能多需求的建筑打印。

It uses low cost ordinary environmental protection material to print and is equipped with original supporting material to print the multi-function and multi requirement building.



# 产品和服务 Products and services

<p>软件先进性 Advanced software</p>	<p>控制系统软件完全自主研发，可任意根据具体需求，增加相应功能模块。自主开发的3D打印软件的核心切片程序，是目前国内唯一的自主研发产品。切片精度高并实现断电续打、模拟打印等技术，切片参数可以根据需要设置，为打印高质量，高要求的实体模型提供了保障，完全实现项目私人定制。</p> <p>The control system software is developed independently, and the corresponding function modules can be added arbitrarily according to the specific requirements. Self-developed 3D printing software core slicing program, is currently the only independent research and development products. The slicing precision is high, and the power failure continued playing, analog printing, etc., and the slice parameters can be set according to the requirements. The utility model provides the guarantee for printing the high-quality and high requirement entity model, and realizes the project private customization completely.</p>
<p>设备先进性 Advanced equipment</p>	<p>机械部分集成化，模块化，自动化程度高，采用的材料轻便，利于安装和运输，适用于各种复杂地形。采用光纤传输信号，抗干扰性强，稳定性能高，打印精度高，节约建筑成本。实现双喷头打印技术，高效快速整体成型。</p> <p>The mechanical parts are integrated, modularized and highly automated, and the materials adopted are light and convenient for installation and transportation, and are suitable for various complicated terrains. Adopting optical fiber to transmit signals has the advantages of strong anti-interference, high stability, high printing precision, and saving construction cost. Realize double nozzle printing technology, efficient, fast, integral molding.</p>
<p>打印材料先进性 Advanced printing material</p>	<p>自主研发的新型普通环保材料，材料特点快速凝干、硬度高、价格低。</p> <p>Independent research and development of a new type of ordinary environmental protection materials, material characteristics, fast drying, high hardness, low prices.</p>
<p>支撑材料先进性 Advanced support material</p>	<p>同步凝干，便于去除，支撑材料可重复回收利用。</p> <p>Synchronous drying is easy to remove and the supporting material can be recycled.</p>

# 产品和服务 Products and services

申请中专利  
Patent in application

10 项发明专利  
Patent for invention

43 个实用新型  
Utility model

13 项著作权  
Copyright

20 项外观专利  
Appearance patent



硬件核心部件、软件算法及专利三位一体成为太空灰的行业壁垒

# 盈利模式 Profit model

## 一、商品销售收入 Commodity sales revenue

产品	盈利模式	内容
3D建筑打印机	硬件销售 Hardware sales	直接向相关企事业单位或组织进行打印机售卖
3D建筑产品定制	产品销售 Building sales	为客户进行建筑产品、装修模型的定制，并销售
3D建筑打印相关耗材	耗材销售 Material sales	向已经购买过打印机的企事业单位出售建筑耗材
3D建筑打印相关模型	建筑信息化模型销售 Model design sales	向已购买过打印机的企事业单位出售可直接打印的建筑模型

# 盈利模式 Profit model

## 二、服务销售收入 Service sales revenue

产品	盈利模式	内容
3D打印相关技术服务	软件服务 Software service	向相关3D打印企业进行打印软件定制服务
3D打印相关技术服务	培训服务 Training service	3D打印行业人员培训及其他相关人才培养
3D建筑模型定制	建模服务 Modeling service	向相关模型爱好者或专业机构出售建模所需素材
3D建筑打印解决方案定制	综合服务 Integrated service	根据企业具体情况，为企业进行全面性3D建筑方案定制，适应性更广

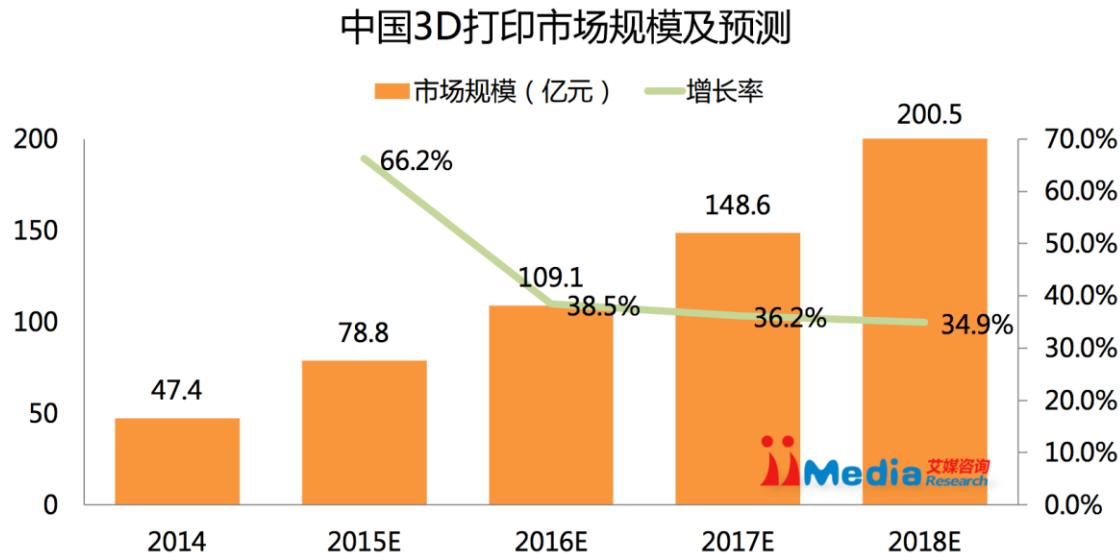


# 客户类型 Customer type

细分市场领域	销售方向	潜在客户
个性建筑 Personality building	定制化别墅、标准化住房 Customized villas, standardized housing	开发商、房地产公司类企业、国际企业
装修装饰 Decoration	装饰品、装修材料、雕像、特殊形状物品 Ornaments, decoration materials, statues, special shapes and objects	装修公司、设计公司、设计工作室等
影视片场 Film studio	影视片场搭建、临时性建筑 Film set, temporary construction	影视公司、横店影城类型、电影小镇类
绿色城市 Green City	城市新型建筑、绿色建筑 The new city building, green building	科技公司、环保公司、海绵城市建设等
园林设计 landscape design	园林雕塑、艺术性围墙、艺术品 Garden sculptures, artistic fences, art works	园林公司、大型设计院、学校、景区建设等
市政建设 City Construction	临时性住房、公益性房屋、廉租房、市政艺术雕塑 Temporary housing, public welfare housing, low rent housing, municipal art sculpture	政府合作、国际政府等

# 市场分析 Market analysis

近年来，中国3D打印市场规模均保持较高增长速度，远远高于全球平均水平；预计2018年中国3D打印市场规模将超过200亿元；作为全球重要制造基地，中国3D打印市场的潜在需求旺盛，未来中国将迎来3D打印发展春天。



# 市场分析 Market analysis

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根据目前市场反馈，真正拥有3D建筑打印技术的公司很少，是100%真正的蓝海。

根据目前建筑产业、绿色建筑产业以及智慧城市政策，这将是一个庞大市场，且行业技术壁垒之高，完全可以有效阻止竞争者。

# 竞争分析 Competitive analysis

竞品公司对比：NASA（美国国家航空航天局）、ESA（欧空局）、上海盈创

公司	打印产品 Print product	3D 打印机 3D Printer	软件 Software	打印材料 Print material
太空灰 Space grey	通过技术完善，实现一次成型打印建筑及其他特殊性建筑构件，品种繁多 Through technical improvement, to achieve a molding, printing, construction and other special architectural components, a wide variety	完全自主研发3D建筑打印机，可根据项目需求进行自由改装 Fully independent research and development of 3D construction printer, according to the project needs of free conversion	目前国内唯一自主研发3D打印软件，根据项目需求进行个性化订制 At present, the only independent research and development of 3D printing software, according to the needs of the project personalized order	自主研发环保建筑材料及可回收支撑材料 Independent research and development of environmentally friendly building materials and recyclable support materials
竞品 Competing products	拼接式建筑楼板或固定式产品 Spliced floor or fixed product	固定不可移动 Fixed, not removable	无 nothing	高成本快干水泥 High cost quick drying cement



# 运营状况 Operation status

- 2012年 ● 2012年项目启动，并于2013年完成3D打印软件开发又陆续开发完成了断电续打、高速切片、模拟打印、私人订制等功能，成为了目前国内唯一自主研发并实现诸多功能的3D打印软件。
- 2013年 ● 2013-2015年，太空灰3D切片程序使用人数达到6000人其中包括从业人员、爱好者等，涉及到3D打印业务公司100多家。
- 2015年 ● 2015年开始涉足3D建筑打印领域并调整3D打印软件。
- 2015年10月 ● 2015年10月开始进行3D建筑打印机制作。
- 2015年12月 ● 2015年12月3D建筑打印机机体部分制作完成并装机成功。
- 2016年03月 ● 2016年3月 3D建筑打印主控系统制作完成并调试成功。
- 2016年05月 ● 2016年5月 3D建筑打印机软硬件调试成功，并打印模型。  
2016年7月 3D建筑打印机测试材料完成并打印出小样



# 业务规划 Business planning

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## 1年规划

- 1、实验定型打印材料。
- 2、打印海绵城市相关产品、3D映像馆相关装饰材料。
- 3、完善调整打印机外形。
- 4、研发多种材质打印混合打印。
- 5、同时进行基础品牌建设、市场开拓、渠道建设及种子用户维护。

## 3-5年规划

线下渠道：建立3D建筑厂区和产业园

线上渠道：日均百万UVI以上的全球性3D建筑打印平台

研究院：建立新型3D建筑研究院

整合相关产业企业和人才，进行产业生态链布局。全面进入建筑、艺术、设计、建造等行业建设工程，以高精尖产品特点进行市场建设。

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# 应用范围 Application range

3D建筑打印适用于别墅、标准化建筑、特殊定制建筑、园林景观、雕塑像、影视城、景观房、临时性建筑、装修装饰造型、海绵城市建设等等。并供应3D建筑打印设备、软件、材料及所有相关工艺等。

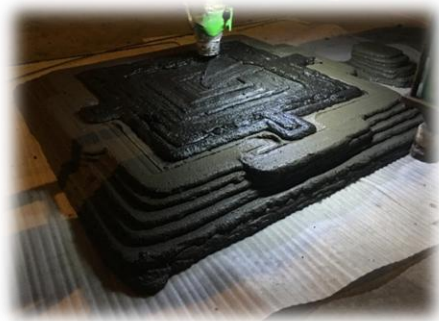
3D building printing applies to villas, standardized buildings, special customized buildings, landscape architecture, sculpture, film and Television City, landscape architecture, temporary architecture, decoration, decoration modeling, sponge city construction and so on.

And supply 3D building printing equipment, software, materials and all related processes.



# 项目特点 Project features

- 1、**三维曲面打印**：可打印任意形状实体。适用于别墅、空间曲面建筑、装修装饰、异型造型、景观凉亭、城市雕塑等，实现各种艺术表现和个性化展示需求；
- 2、**轻量化设计**：设备运输方便，安装拆卸简便，可现场打印，大小任意调整，光纤控制稳定可靠；
- 3、**专业的软件**：自主研发专用于3D建筑打印程序，拥有产权证书。可任意规划打印路径，柔性控制；精确实现断点续打、预览查看、模拟打印等功能；专业的3D建筑打印软件为打印出高质量的实体模型提供了保障；
- 4、**打印材料**：使用成本低廉的普通硅酸盐水泥材料打印，并兼容其它近似物理性质的材料，配有自主研发的绿色环保支撑材料——质地硬、重量轻、瞬间凝结、易去除、循环利用；采用双喷打印技术，高效快速一次整体成型；
- 5、**供应整套技术**：设备、软件、材料及工艺四方面成熟可靠，配套齐全。设备生产周期短，性价比高。



# 项目特点 Project features

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- 1, 3D surface printing: can print any shape entity. The utility model is suitable for the villa, the space curved surface building, the decoration , the special-shaped modeling, the landscape pavilion, the city sculpture and so on, and realizes the various artistic performance and the personalized display demand;
- 2, lightweight design: easy to transport equipment, easy installation and disassembly, on-site printing, size arbitrary adjustment, fiber control stable and reliable;
- 3, professional software: independent research and development, dedicated to the 3D building printing program, with property certificate. It can plan the printing path arbitrarily, control the flexibility, realize the functions of breakpoint continuation, preview view, simulation printing, etc. the professional 3D building print software provides the guarantee for printing the high quality entity model;
- 4, print materials: the use of cheap Portland cement material printing, and is compatible with other similar physical properties of materials, with independent research and development of green environmental protection material support - hard texture, light weight, easy removal, instant condensation, recycling; using double printing technology, fast forming an overall;
- 5, the supply of complete sets of Technology: equipment, software, materials and processes, mature and reliable in four areas, supporting complete. The equipment has short production cycle and high performance price ratio.





# 谢谢 Thanks

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