Kings 3D Printing

雷佳 LASERADD

Dental printer

Shenzhen Kings 3D Printing Technology Co.,Ltd
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1 About Kings

1.1 About Kings — Careers

2002 Laseradd started researching the application of 3D printing in the dental industry.

2015 Shenzhen Kings was established to produce and sell industrial resin printers.

2016 Kings exported the first batch of 3D Printers to Portugal and started to go global.

2018 Jiangxi Kings established as a large-scale and standard 3D printer production base. Kings officially started to develop and produce 3D printing materials independently.

2019 Establishing a dental printing center and dedicated R&D team for dental products, with self-developed materials and control software.

2022 Kings acquired Laseradd, jointly focusing on expanding applications for metal 3D printers and advancing metal 3D printing in dentistry.

2024 5000 Kings printers (SLA, SLM, FGF and SLS) have been sold into more than 40 countries, including Germany, UK, France, Portugal, Italy, Turkey, UAE, Japan, Korea, Australia, USA, Brazil and etc.

1.1 About Kings — Careers

Automotive Prototyping Center in Chongqing

SLM/SLS/FGF Printer Factory in Zhuhai

Headquarter in Shenzhen

Printer and Consumable Factory in Zhejiang

Printer and Consumable Factory in Zhejiang

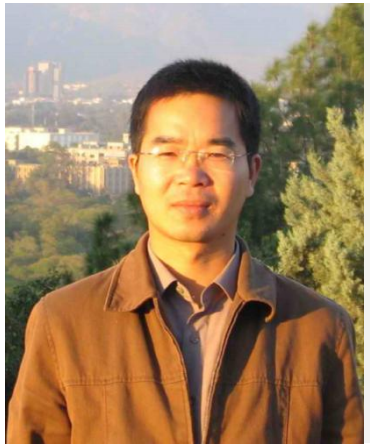
Printer Production Base in Jiangxi

Yongqiang Yang

Chief Scientific Director

- Professor, Doctoral Supervisor of South China University of Technology
- President of Guangdong Additive Manufacturing Association
- Vice Chairman of China 3D Printing Industry Technology Alliance
- Director of Guangdong 3D Printing Standardization Association

1.2 About Kings — Our RD Team



Major in Power System and Automation in Shanghai Jiaotong University. R&D SLM and SLS projects

Jiehua Wu

Ph.D. from the Chinese University of Hong Kong, postdoctoral fellow at the Swiss Federal Institute of Technology Zurich

Dr Xiaoyu Sun

Professor, Doctoral Supervisor of South China University of Technology

Songchang Hui

Doctor of Engineering, visiting scholar at the University of Birmingham, UK, co-chairman of the National Youth Additive Manufacturing Forum

Di Wang

Mechanical and Electronic Engineering, Wuhan University of Technology, SLA and SL equipment and material R&D

Lei Zhang

Harbin Institute of Technology major in control engineering, material and equipment R&D engineer

Qi Wang

1.3 About Kings — Our Patents

- **More than 200 patents related to SLA, SLM, SLS 3D printing have been authorized to Kings Group, including more than 30 invention patents and more than 50 software copyrights.**

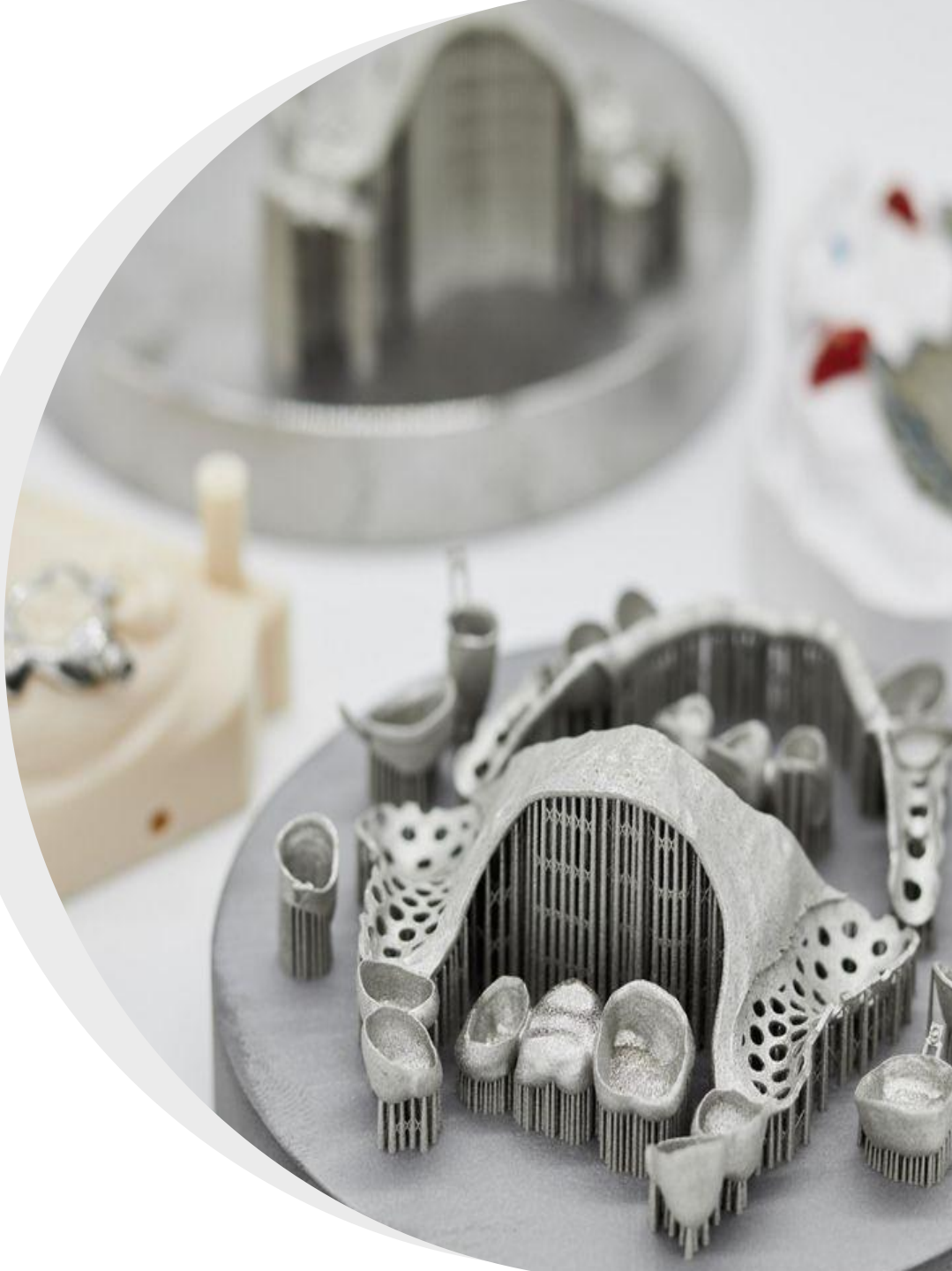
Main Invention patents

一种3D打印粉末及其制备方法	201810425042.8	自主研发
口径可调的3D打印机喷头	201710528915.3	自主研发
一种多喷头凌空式三维打印机	201810367591.4	自主研发
一种钛及钛合金3D打印产品清洗装置	202011413221.3	自主研发
光固化3D打印机使用的光敏树脂	202011462184.5	自主研发
一种3D打印机自动弹出式载物平台	202110937178.9	自主研发
一种3D打印箱视窗玻璃测试装置及方法	202111028249.X	自主研发
一种3D打印机折叠框架及折叠方法	202111165018.3	自主研发
一种耐高温光固化树脂材料及其制备方法、应用	202111176449.X	自主研发
一种3D打印方法	201810819071.2	自主研发
一种光固化3D打印机	201810493885.1	自主研发
一种PDCPD高压灌注系统	201910897023.X	自主研发
一种变频工业级sla光固化3D打印机	201910930562.9	自主研发
一种SLA光固化3D打印下件用产品清理设备	201910870416.1	自主研发
一种轮转式3D打印机喷头切换装置	201610199321.8	自主研发

Main Software Copyright

KINGS 3D打印数据处理软件V1.0	原始取得	全部权利	2017SR425510
KINGS 3D打印数据处理软件（简称：KINGS3D打印软件）V1.0	原始取得	全部权利	2017SR062330
远程监控软件（简称：远程监控）V1.0	原始取得	全部权利	2019SR0556587
Kings3D Creator数据处理软件	原始取得	全部权利	2022SR0164318
Kings3D-SLA 打印设备控制软件	原始取得	全部权利	2021SR1682989
鞋业Orang软件（简称：Orang)2.4	原始取得	全部权利	2019SR0661847
鞋业Orang软件（简称：Orang)2.5	原始取得	全部权利	2019SR0868700
3D打印大数据监测系统	原始取得	全部权利	2020SR1269301
3D打印智能化售后服务系统	原始取得	全部权利	2020SR1269233
3D打印综合管理平台	原始取得	全部权利	2020SR1269271
金石3D打印操控系统	原始取得	全部权利	2020SR1267899
金石增材制造大数据系统	原始取得	全部权利	2020SR1267908
3D打印数字化仿真建模软件V1.0	原始取得	全部权利	2022SR0528250

2 Products



2.1 M150T — Dental Printer

Advantage

> High accuracy
> Stable laser
> Self-developed software
> Pre-set Parameters Package
> Quick print efficiency
> Save installation space

Components

> Fully pop-up piston system
> More convenient and quicker to replace metal powders
> And 100% eliminates cross powder contamination when replacing powders

Ideal Applications

> Dentistry, orthopedics;
> Jewelry;
> Research education,etc.

2.1 Specification of M150T

Extemal Dimensions (L*W*H)	1565*965*1800mm
Build Cylinder Size	150*150*120mm
Layer Thickness	0.02mm----0.1mm
Scanning Speed	7m/s
Laser	2*500W (optional for dual or single laser)
Galvanometer	High Precision Scanning System
Comprehesive Software	Kings 3D Self-developed Control System
Materials	316L,Ti6AlSi10Mg,In718,CuSn10,Cocr,18Ni300,etc
Powder Delivery	Double Cylinder One Way Powder feeding

2.2 M100E — Dental Printer

Advantage

> High precision & high quality
> Stable laser & Customized configuration
> Self-developed software
> Self-developed software
> Smaller machine models, quick effiency

Components

> Fully pop-up piston system
> More convenient and quicker to replace metal powders
> 100% eliminates cross powder contamination when replacing powders

Ideal Applications

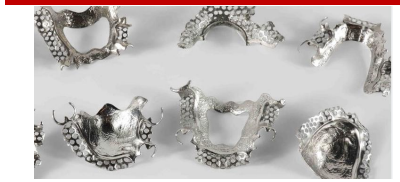
> Dentistry, orthopedics;
> Jewelry;
> Research education,etc.

2.2 Specification of M100E

Extemal Dimensions (L*W*H)	715*913*1784mm
Build Cylinder Size	100*100*100mm
Layer Thickness	0.02mm----0.1mm
Scanning Speed	7m/s
Laser	1*500W
Galvanometer	High Precision Scanning System
Comprehesive Software	Kings 3D Self-developed Control System
Materials	316L,Ti6AlSi10Mg,In718,CuSn10,Cocr,18Ni300,etc
Powder Delivery	Double Cylinder One Way Powder feeding

2.3 Product — Common dental printed product

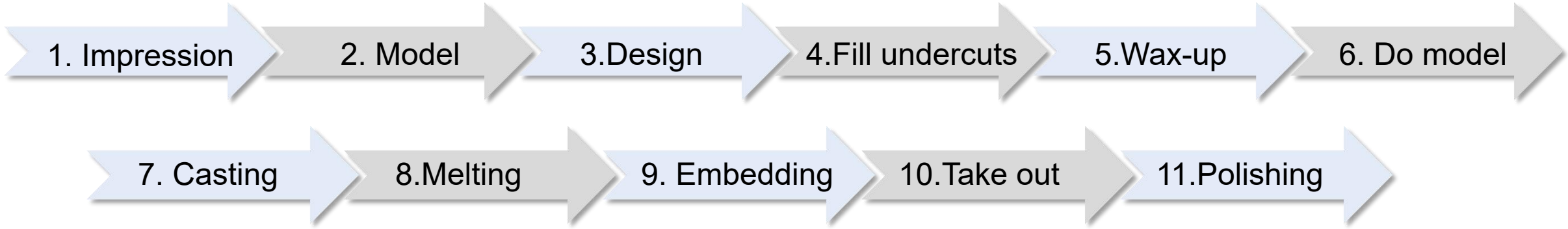
Kings 3D M150T

Picture	Nname	Function
	Frameworks/Partial	RPD
	Dental crowns/bridges	Metal-Ceramic Crown
	Malong Bridge	Implants
	Ligual wire	Dental beauty
	Maintainers	Dental beauty
	Guider	Guide the implants

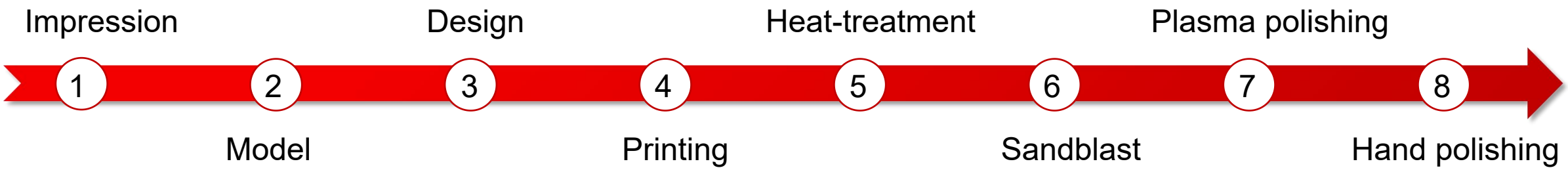
3 Comparison

3.1 Comparison Between Casting and SLM

- Casting (About 11 Steps)

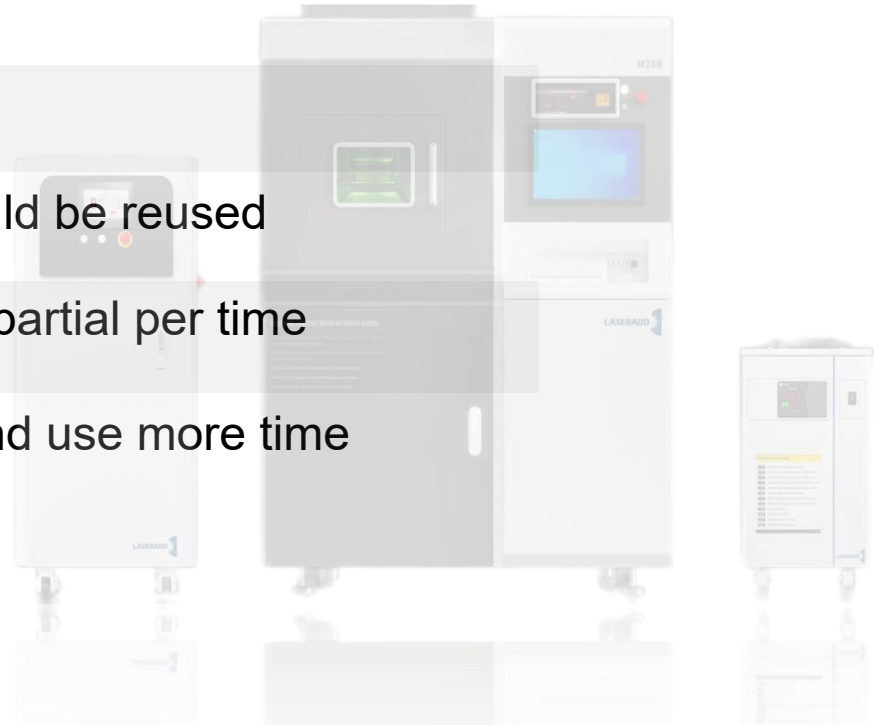


- **SLM (Only 8 Steps)**

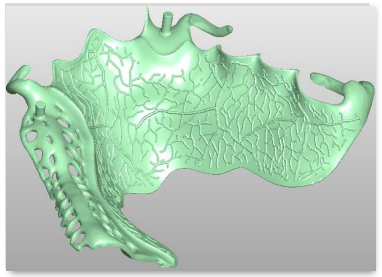


3.2 Comparison ----- Cost

Item	Casting	Metal printing
Process of produce	About 11 steps	About 8 steps
Workers	5-6	3
Cost of workers (in China)	about 7200usd/M	About 3600usd/M
Materials being used	about 6 kinds	2
Material recycling	could not reused	Powder could be reused
Efficiency	one pc of partial per time	14-17pc of partial per time
Post-processing	Easy and use less time	Complex and use more time



3.3 Printing and after printing process



1.Design

2. Printing

3. Heat-treatment

4.Cutting

5.Sandblasting

6.Plasma Polishing

7.Hand Polishing

4 Cost Effective Analysis

4.1 Cost Analysis

	M100E(100*100mm)	M150ED(150*150mm)
Picture		
Print Crowns per once time	120pcs	200pcs
Layer thickness	30um	30um
Printing time	2.6hours	4hours
Power consumable	10kwh	15kwh

4.2 Summary

From labour force

1. Casting involves more workers across various processes, whereas SLM method requires only 3 workers.

2. Casting requires extensive experience from workers at every stage, whereas SLM only requires training to operate the printer and experienced design expertise.

01

From cost

Casting needs more materials, workers, tools, etc, whereas SLM only requires powder and minimal labor.

02

From efficiency

Casting can only produce one framework at a time, whereas SLM can produce 12-17 pieces.

03

From work condition

The working condition of SLM is more clean and comfortable.

04

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THANK YOU

Very grateful for your time

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