Bring Your Idea to Life with Kings
Leading-edge

Industrial 3D Printers

Shenzhen Kings 3D Printing Tech. Co., Ltd

www.kings3dprinter.com

Kings
3D Printing

CONTENTS

1.1 About Kings—Milestones

2002 Laseradd team started the R&D of SLM 3D Printers.

2008 Shantou Kings was established as a prototyping company (3D printer user).

2015 Shenzhen Kings was established to produce and sell industrial SLA 3D Printers.

2016 Kings exported the first batch of printers to Portugal and started to go global.

2018 Jiangxi Kings (self-owned factory) was built as a large-scale and standard 3D printer production base.
Kings officially started to develop and produce 3D printing materials.

2021 Laseradd developed M650 SLM printer (625*625*1100mm).
Kings 3D developed the largest industrial SLA printer Kings 2700Pro (2700*900*800mm) in China.

2022 Investment from Morgan Stanley and Guosen Capital (State-owned)
Kings merged Laseradd and Eastwind, and expanded to SLM and SLS 3D Printers.
Kings launched FGF 3D Printers.

2023 Nearly 5000 Kings printers (SLA, SLM, FGF and SLS) have been sold into more than 38 countries, including Germany, UK, France, Portugal, Italy, Turkey, UAE, Japan, Korea, Australia, USA, Brazil and etc.

Headquarter in Shenzhen

Printer Production Base in Jiangxi

SLM/SLS/FGF/FDM Printer Factory in Zhuhai

Automotive Prototyping Center in Chongqing

Printer and Consumable Factory in Zhejiang

Kings 3D Printer Museum

Mr. Jiang CEO & Founder

- The first one in China to apply 3D printing to the shoe industry
- The first one in China to apply ceramic printing to industrial production
- Leading the R&D of China's largest industrial SLA 3D printer

Dr. Yang (Chief AM Scientist)

- 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—Teams

Jiehua Wu

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

Dr Xiaoyu Sun

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

Songchang Hui

Professor, Doctoral Supervisor of South China University of Technology

Di Wang

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

Lei Zhang

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

Qi Wang

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

Kings 3D Printing

- 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

Kings 3D Printing

Automotive

Aerospace &Defense

Accessories

Molds&Tools

Research

02

Products

2.1 Kings SLM Printer
2.2 Main Features
2.3 Consumption
2.4 Our Solutions
2.5 Classic Demo Review

Kings 3D Printing

Provider of integrated system solutions – product portfolio

Flexible Compact

M5O

M100

Advanced Mid-Range

M150

M280

M490

Efficient Large-Format

M500

M450

M650

Accompanying equipment of Kings SLM 3D Printers

Circulating water cooling machine

-Keep the optical system at a constant temperature
-Maintain constant temperature in the printing chamber

Protective gas circulation filter

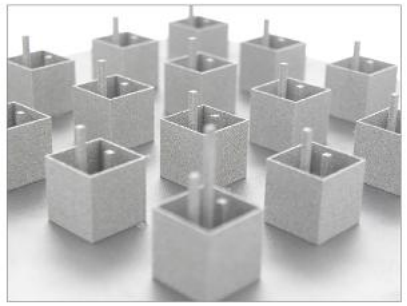
-Keep the inner gas clean in the chamber
-Filter metal fume, spark thing
-Keep the air flow and gas field in the chamber

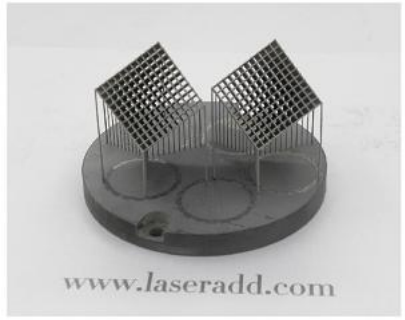
Automatic powder feeding machine

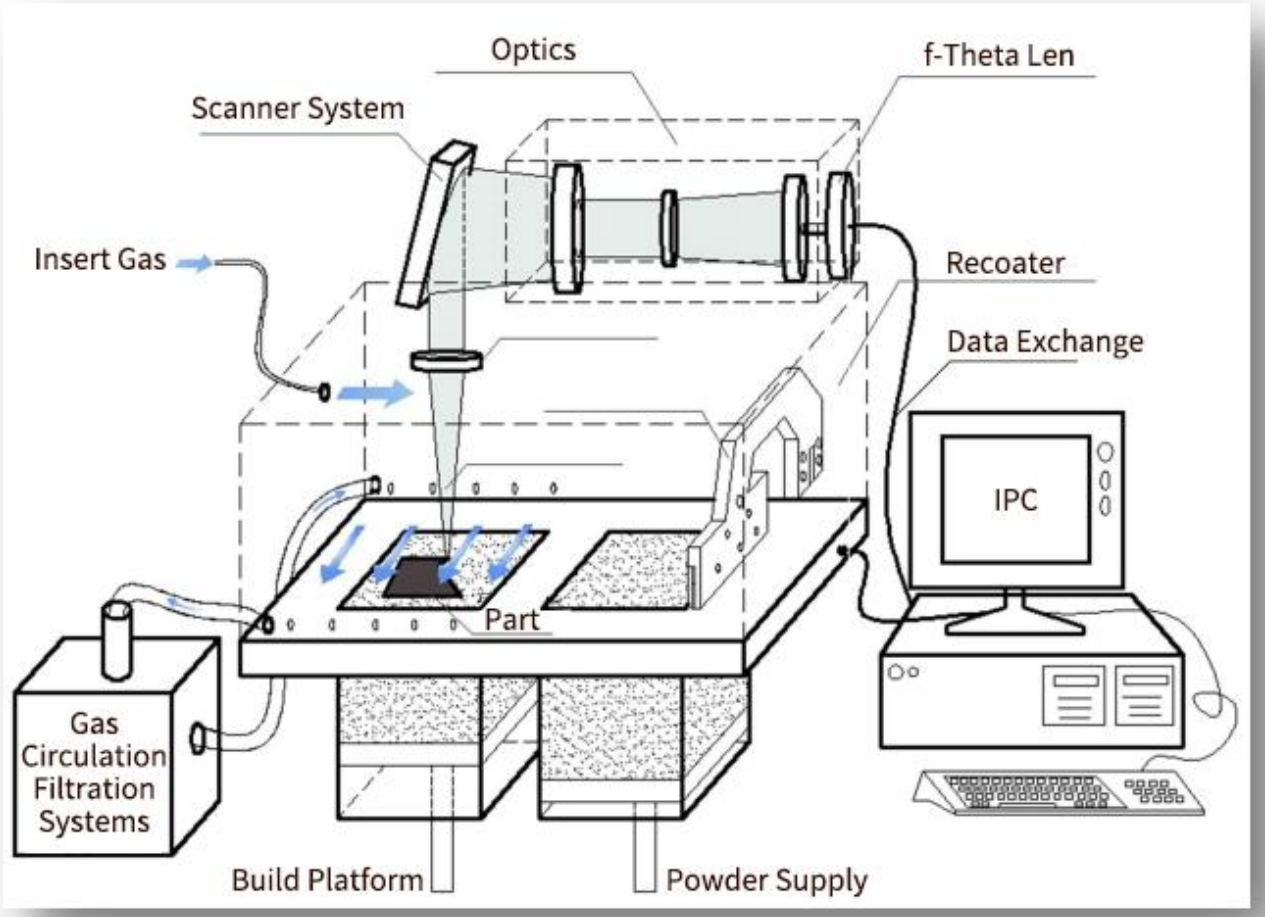
-Add powder supply for long-time printing on large-scale equipment

Printer forming methods of Kings SLM 3D Printers

Selective laser melting (SLM) is a typical metal 3D printing technology that uses laser as heat source and has a wide range of applications.







Features: It greatly reduces the constraints of the spatial structure on the part processing technology, increases the freedom of design, and shortens the development and production cycle.

Kings 3D Printing

Main features of Kings SLM 3D Printers

1 Self-developed software

Intelligent operation
Automatic error reporting
Open parameters & Working offline

2 High-End Optical Components

IPG Laser
Scanlab Galvanometer

3 Full pop-up piston

Complete cleaning of the printer
Easy change of printing material

4 Double circulation wind field protection system

Protective gas to improve printing quality
Lense protection to extend optical system lifespan

5 Fully sealed vacuum chamber

Oxygen content as low as 100PPM to avoid metals getting oxidized

6 Multi-stage filter

Longer time span for the filter use

7 Saving user consumption

Save money for customers by saving electricity, materials, protective gas, filter consumables, floor space

8 Complete service process

Layout suggestion, print data package, on-site installation, maintenance, operation, Free training for safety production, technical support

2.3 Consumption

Power consumption of Kings SLM 3D Printers

	 						 		
Model	Power Source	**Rate Power/KW**	KW.h(10h working time)	Power Source	**Rate Power/KW**	KW.h(10h)	Power Source	**Rate Power/KW**	KW.h(10h)
50	220V 50Hz Single Phase AC	0.8	8	220V 50Hz Single Phase AC	1	10	380V 50Hz Three Phase AC	1.5	15
100E		2.6	26		1	10		1.5	15
150E		4	40		2	20		2.2	22
280E	380V 50/60Hz Three Phase AC	6.8	68		2	20		2.2	22
490		8	80		2	20		2.2	22
450		10	100		2	20		2.2	22
650		23	230		2	20		2.2	22

Conclusion: Whole power consumption is 15% less than other all in one design brands.

2.3 Consumption

Powder consumption of Kings SLM 3D Printers

Model	Forming Rate	10H Printing	Weight KG (316L/10H)	15.4USD/KG(Reseller price)
50	5cm³/h	50cm³	0.23kg	US$3.54
100	15cm³/h	150cm³	0.69kg	US$10.63
150	30cm³/h	300cm³	1.38kg	US$21.25
280	35cm³/h	350cm³	1.61kg	US$24.79
490	40cm³/h	400cm³	1.84kg	US$28.34
450	45cm³/h	450cm³	2.07kg	US$31.88
500	50cm³/h	500cm³	2.3kg	US$35.42
650	80cm³/h	800cm³	3.68kg	US$56.67

Conclution: Cost-effective powder price + high forming efficiency, the production cost will be reduced by about 20% compared with other brands.

2.3 Consumption

Gas consumption of Kings SLM 3D Printers

40L of liquefied gas = 5000L of gas , 1L of liquefied gas= 125L of gas

Model	Air purge gas consumption	Replacement purge gas consumption	Protective gas consumption L/min	Testing with 10h printing gas consumption
50	10% of a 40L	20% of a 40L	3L/min	10%(600L)+1800L=48% of a 40L tank
100	15% of a 40L	25% of a 40L	3L/min	15%(750L)+1800L=51% of a 40L tank
150	20% of a 40L	35% of a 40L	3L/min	20%(1000L)+1800L=56% of a 40L tank
280	25% of a 40L	40% of a 40L	5L/min	25%(1250L)+3000L=85% of a 40L tank
490	30% of a 40L	45% of a 40L	5L/min	30%(1500L)+3000L=90% of a 40L tank
450	30% of a 40L	45% of a 40L	5L/min	30%(1500L)+3000L=90% of a 40L tank
500	30% of a 40L	45% of a 40L	5L/min	30%(1500L)+3000L=90% of a 40L tank
650	40% of a 40L	50% of a 40L	5L/min	40%(2000L)+3000L=100% of a 40L tank

Conclution: The consumption of protective gas depends on the size of the printer. We are external air filter machines, so the gas consumption can save more than 20% compared with other all in one designs.

Solutions of Kings SLM 3D Printers Against Barriers

Adoption Barriers for further growth and how we overcome them

-Missing Know-How in Additive Manufacturing.

-Learning curve in using laser melting systems.

-New part design – know how, habits, tools.

-Certification and quality assurance.

-Complexity of machines and solutions.

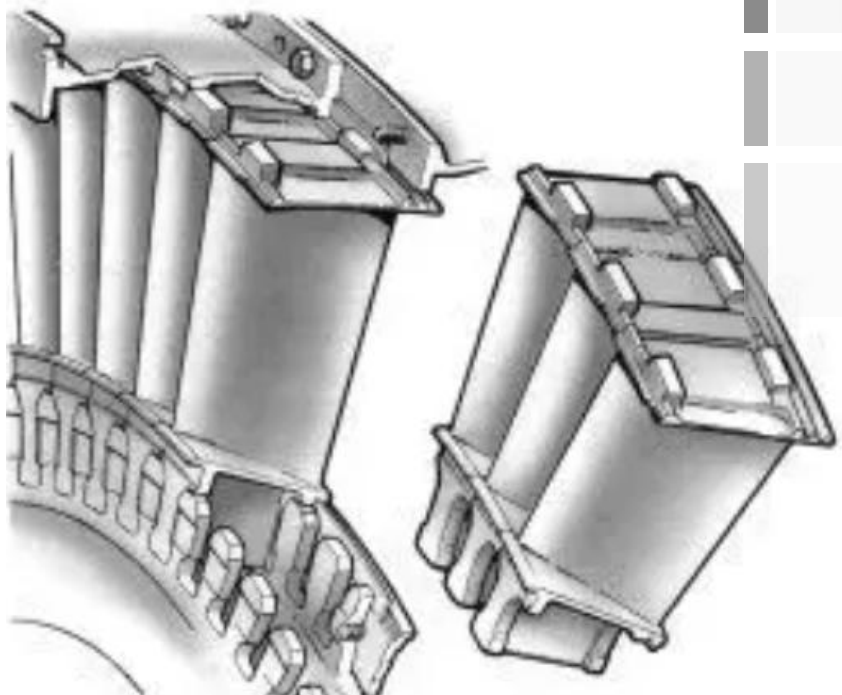
-Learning curve in implementing in production process chain.

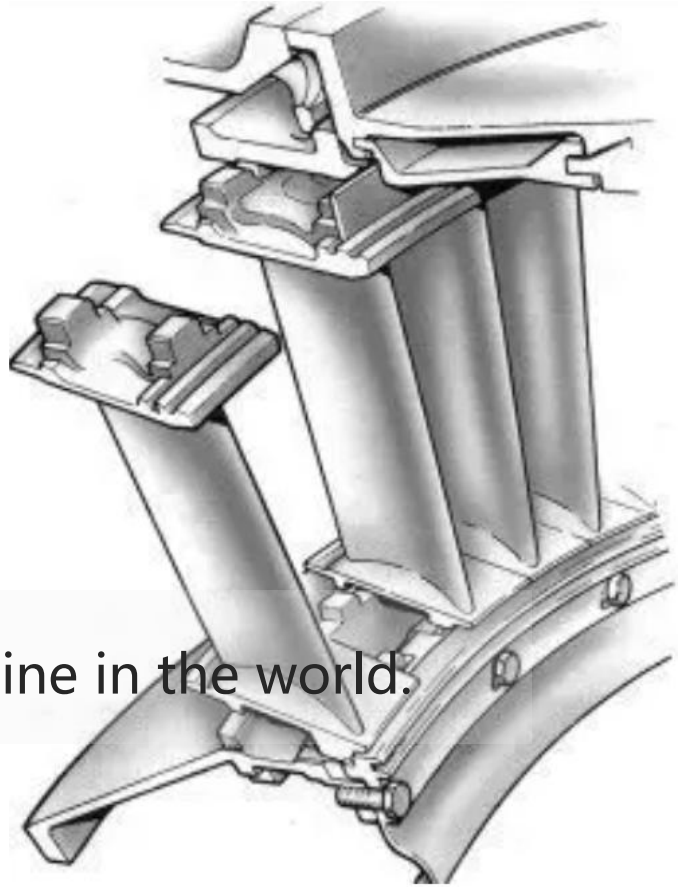
Kings 3D Printing

Demo Turbine Blade Inc 718

Traditional

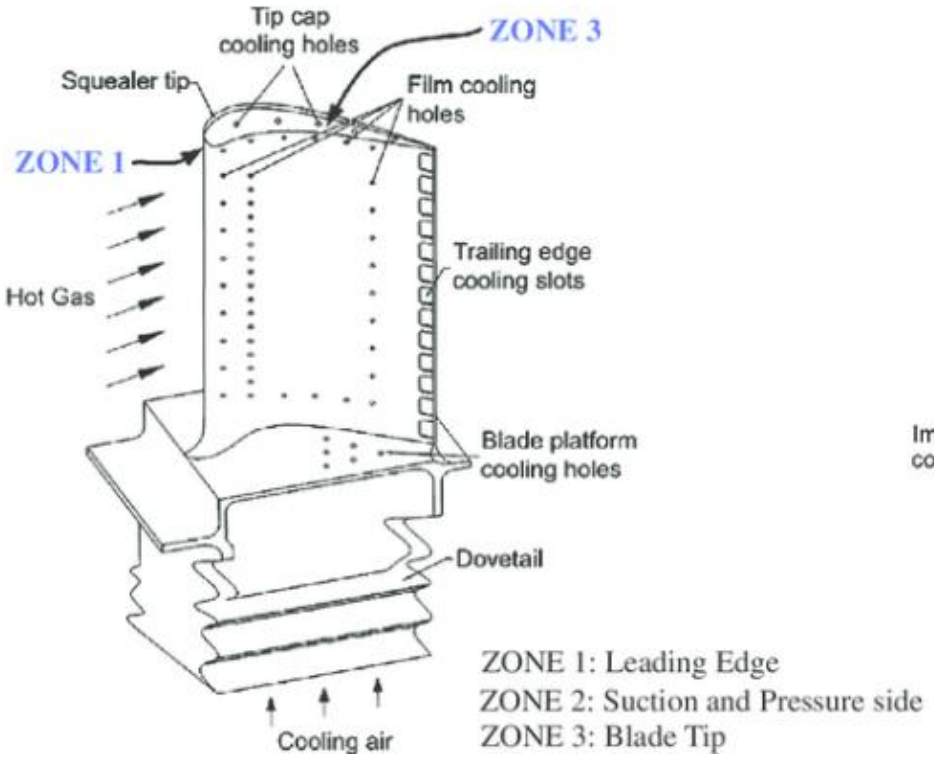
- Simplistic design
- No internal air paths
- Service life of only 1 year
- One of the most difficult parts to machine in the world.



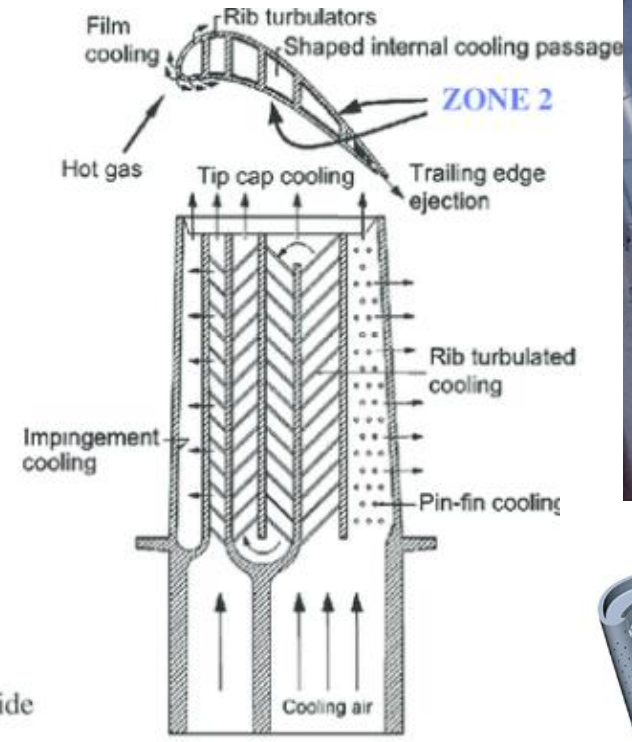


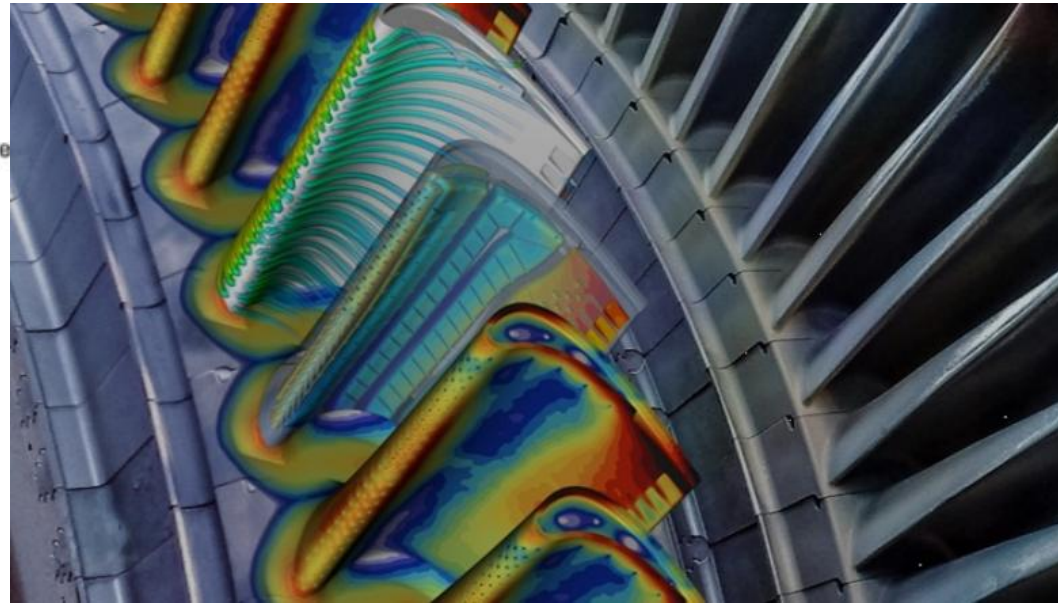
Kings 3D Printing

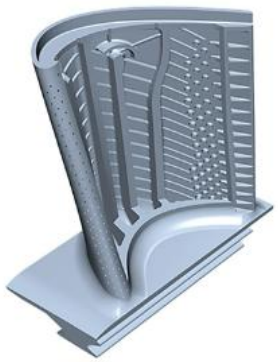
Design complete freedom

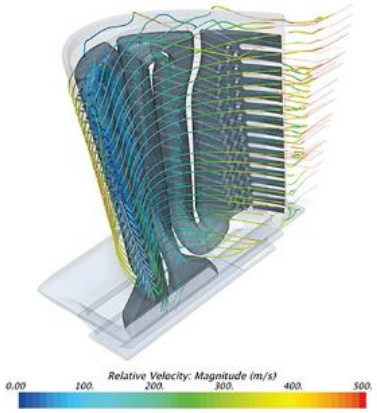


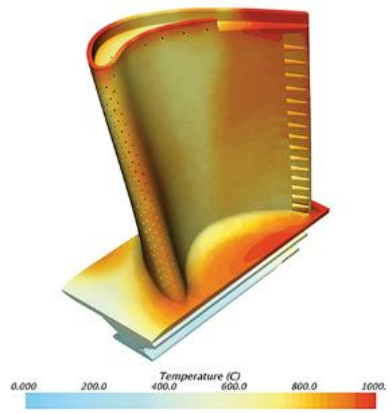
ZONE 1: Leading Edge
ZONE 2: Suction and Pressure side
ZONE 3: Blade Tip





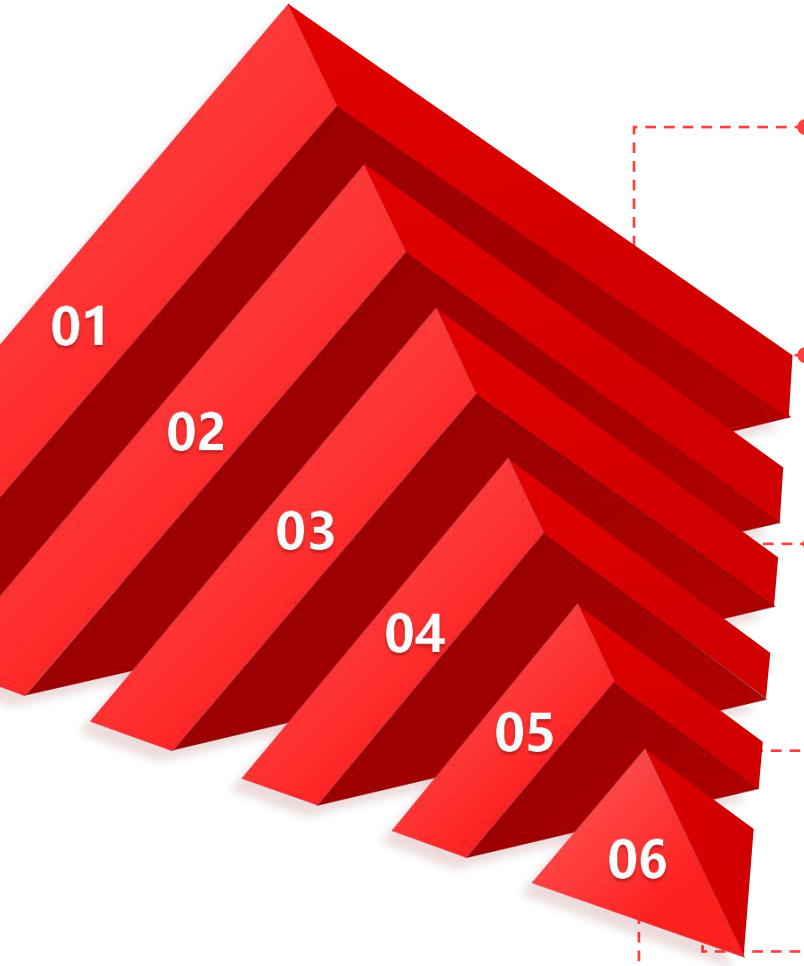


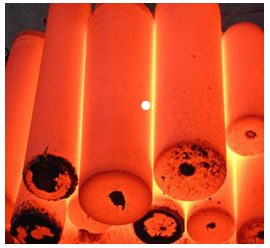




Kings 3D Printing

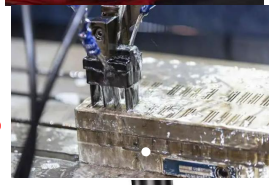
Why Traditional Manufacturing Needs Us?



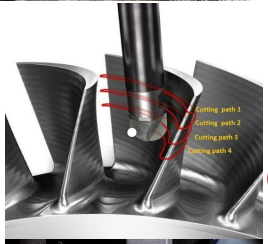


Casting

Forging



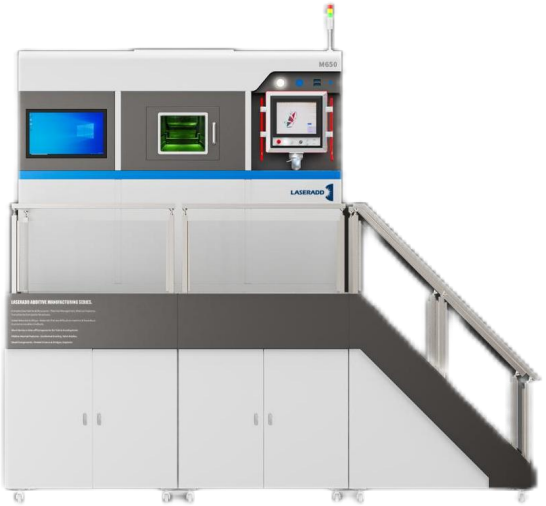
Wire Cutting



CNC Tool Path Design

CNC 3/4 Axis rough machining

CNC 5 Axis finish machining



Complexity comes for free

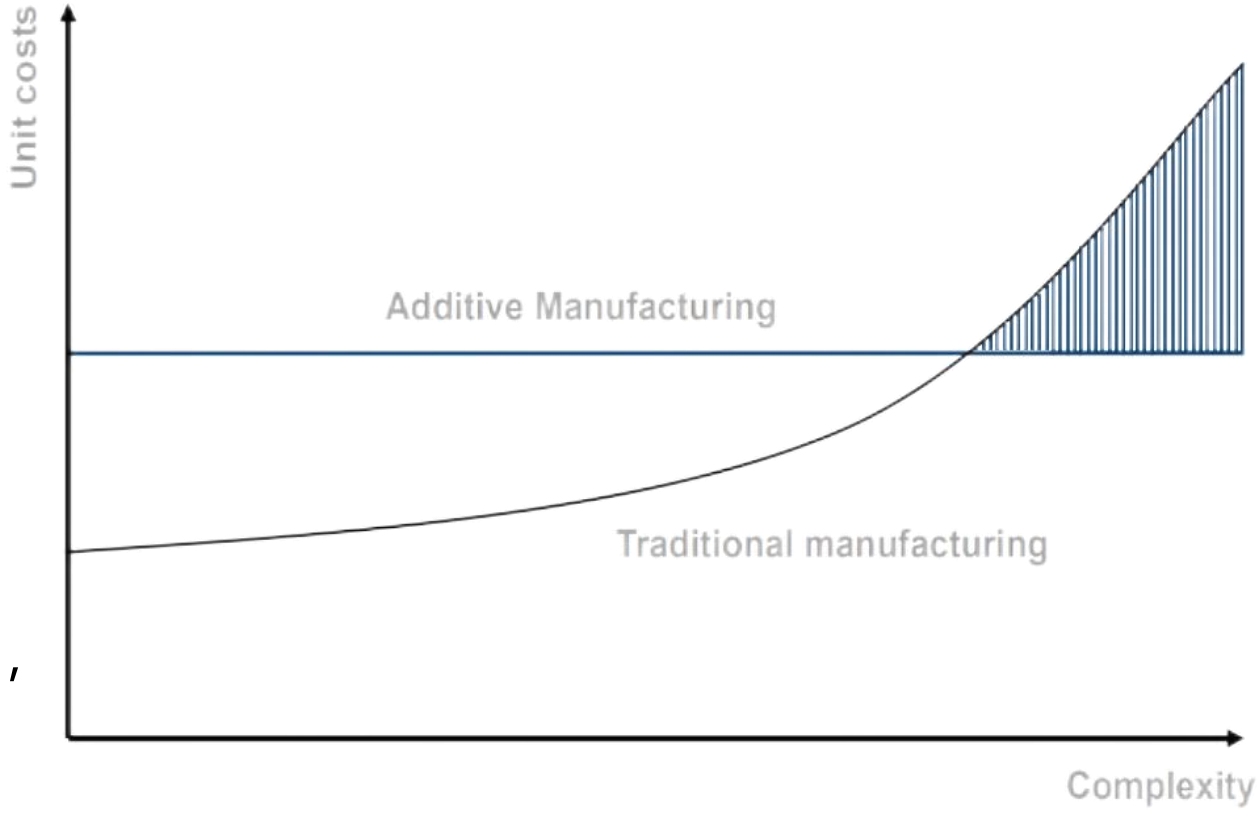
Conclusion:

Faster: build time reduced by up to 90 %

More efficient: "bionic geometry", weight reduction by up to 60 %

More cost effective: reduction of component costs by up to 70 %

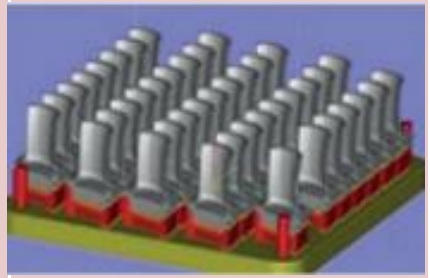
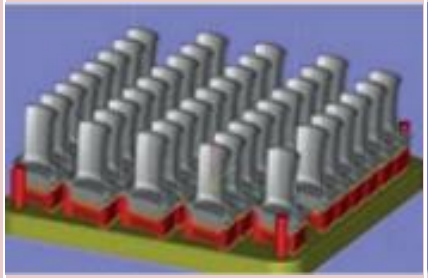
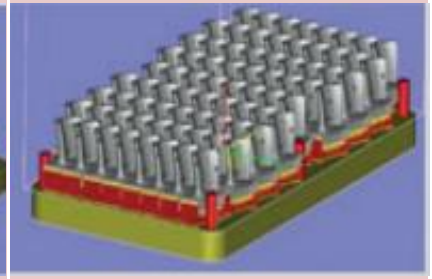
More flexible: "complexity comes for free", decentralized "on demand" production



Kings 3D Printing

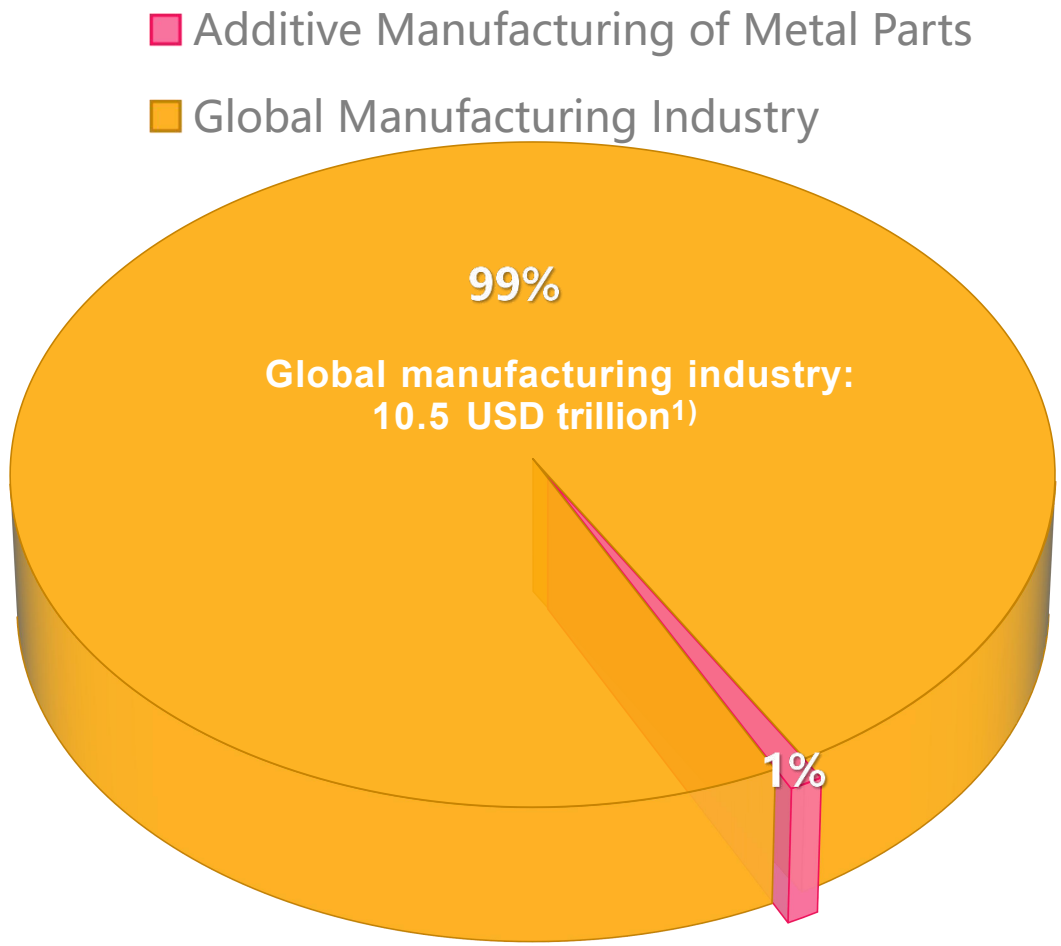
Productivity comparison in different condition

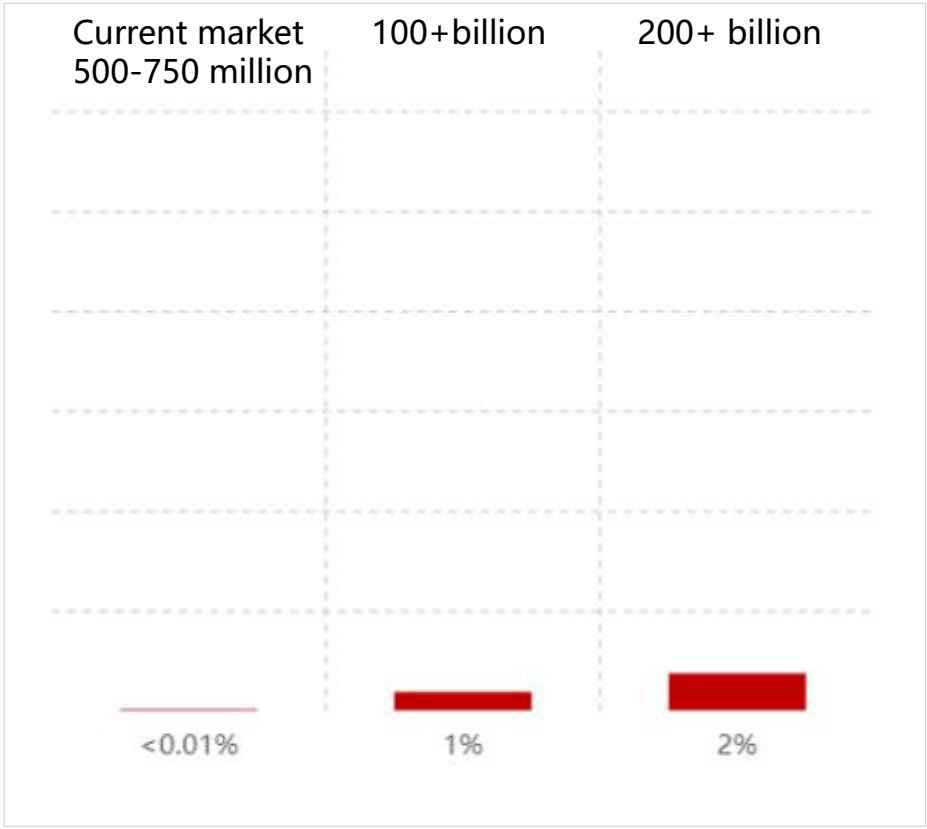
Material: Inc 718
Height: 75 mm
Volume: 22.772 ccm
Weight: 187g
Industry: Energy
Aerospace

Demo Turbine Blade	M280 Single Laser 500W	M280 Dual Laser 500W	M650 Quad Laser 500W
			
Parts- Plate	43	43	78
Time(h)	77h42min	41h50min	41h28min
A plate cost ($)	3192usd	2098usd	3469usd
Part build time (min)	109min	59min	32min
Part cost ($)	74.23usd	48.81usd	44.47usd
Build Rate(cm^3/h)	12.6	21.8	42.9

Kings 3D Printing

Where is the potential of metal printing?





1) 2012, Wohlers Associates

03

Industries

3.1| Aerospace&Aviation

3.2| Automotive

3.3| Molds & Tools

3.4| Health Care

3.5| Energy

Kings 3D Printing

SLM Machines of Kings 3D Group is already operating in key industries

- AEROSPACE
- AUTOMOTIVE
- TOOLING
- HEALTH CARE
- ENERGY

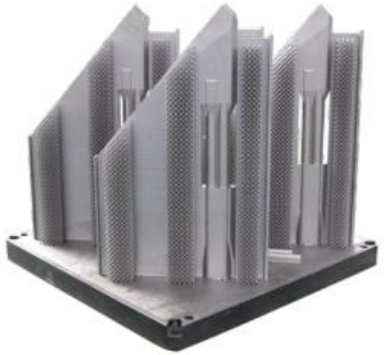
- Kings3D Group has exposure to attractive end markets and has longstanding relationships with blue chip customers
- The market continues the shift from rapid prototyping to industrial applications
- Kings3D is well positioned to capitalise on this trend given SLM technology and customer base





Application of SLM Printing in Aerospace&Aviatoin

IN718 Frame
470mm*400mm*499mm

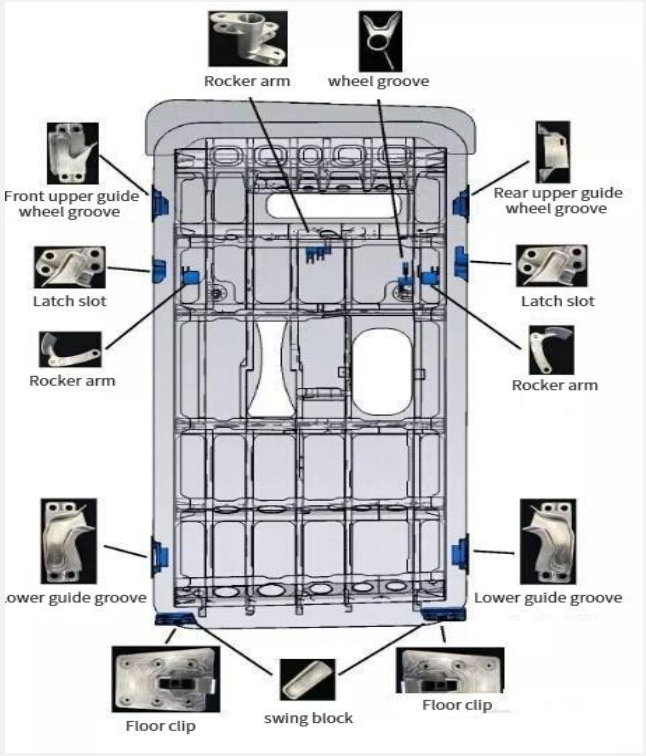


IN718 Horizontal Stabilizer
359mm*40mm*555mm

Kings 3D Printing

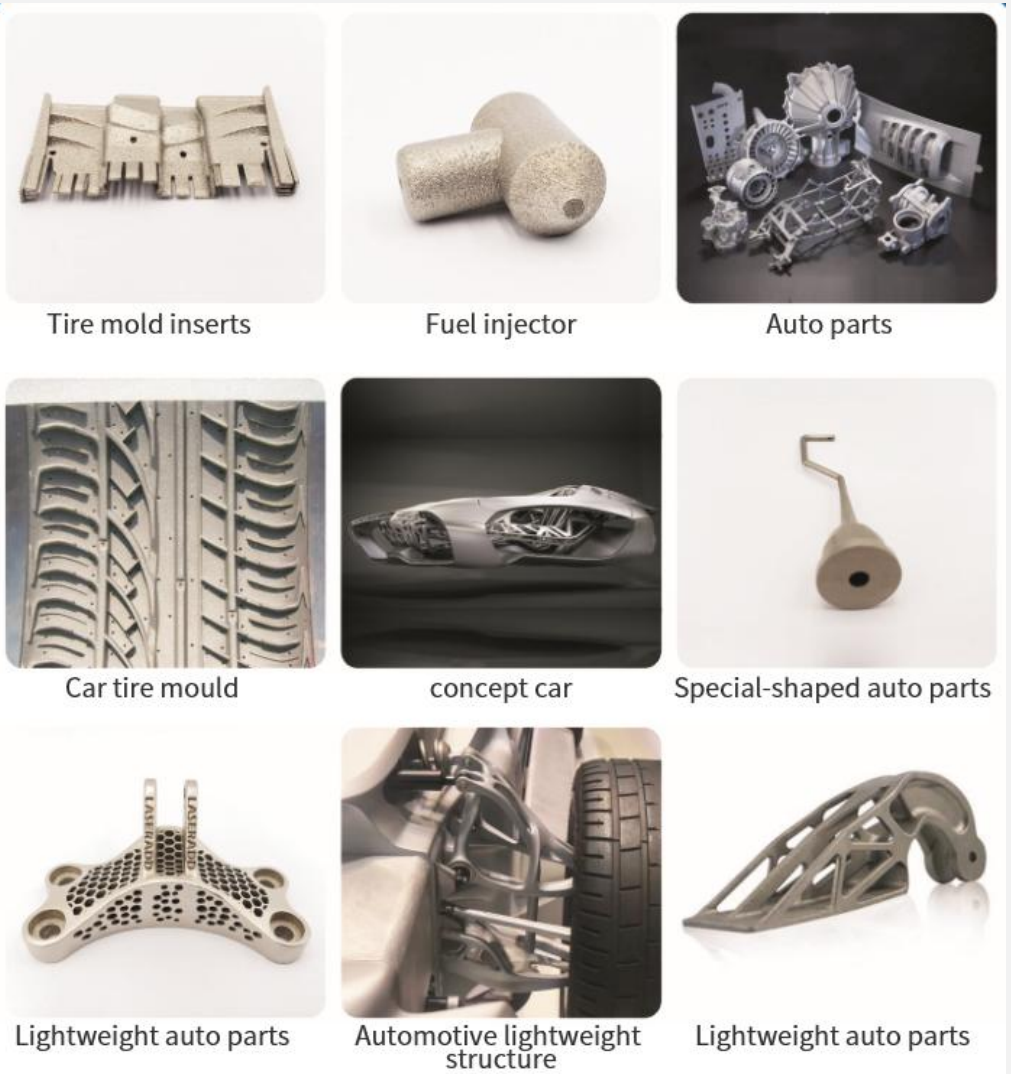
Advantage of SLM Printing in Aerospace&Aviation

- Shorten the turnaround times on R&D
- Optimize the structure of parts to reduce weight and extend the life-span
- Improve the use rate of materials to cut the costs

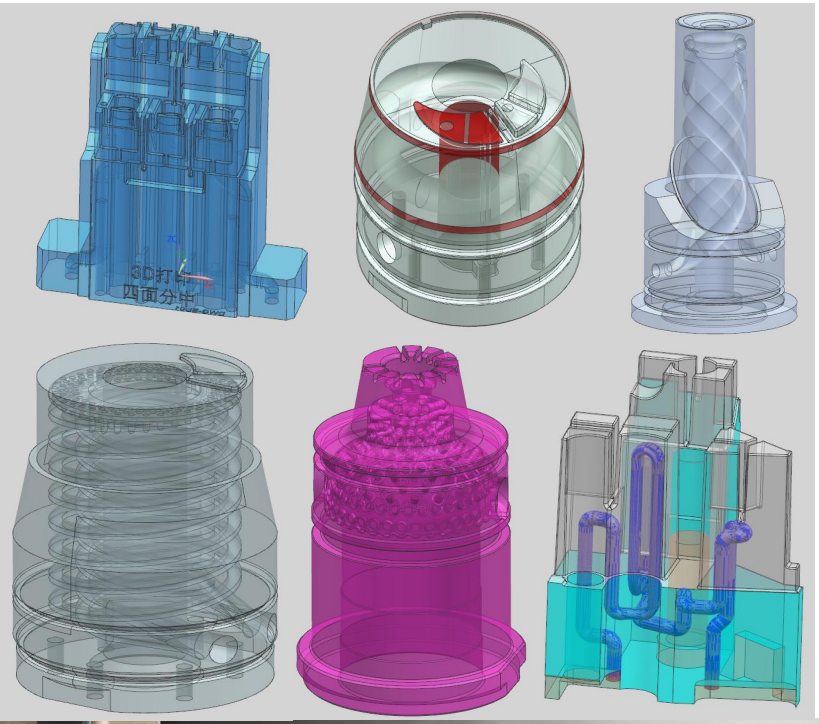


- Special-shaped parts
- Light weighting of heavy components
- Damaged parts replacement

3.2 Industries—Automotive



- While the traditional designer of the car relies on hand-made sludge model, 3D printing machine is able to print the prototype directly.
- KINGS 1700 SLA 3D Printer was customized for the automotive industry, with printing size 1700mm*800mm*500mm
- KS M280 Printer was customized for the automotive industry, with printing size of 250*250*280mm

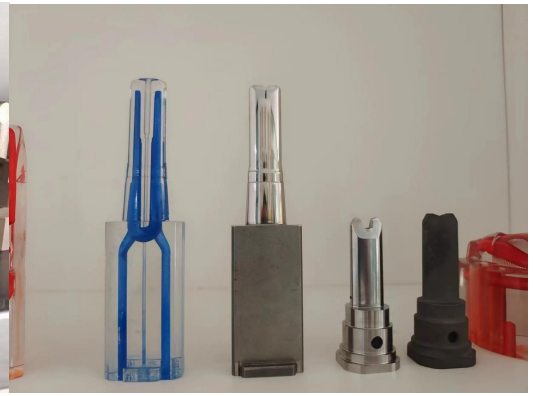


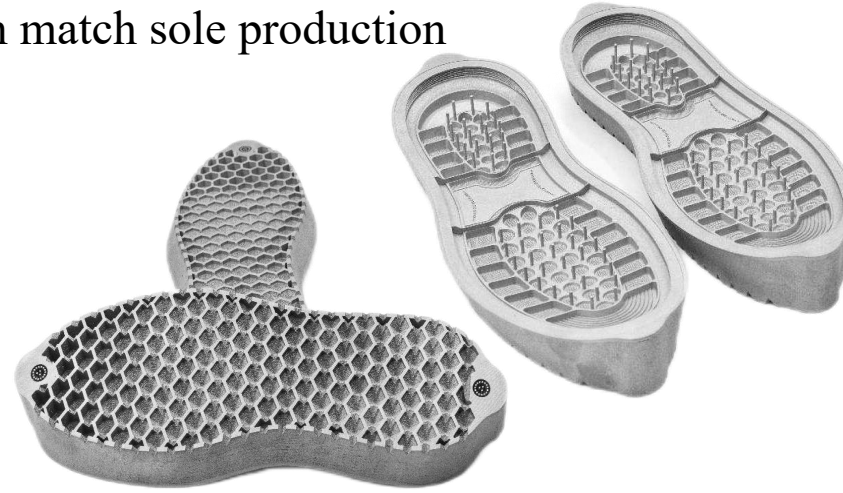
Conformal cooling channel

KINGS made embedded water channels insert mold with Moldflow analysis software, which can improve cooling speed by 25% and improve injection molding efficiency.

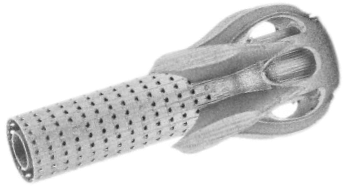
KINGS is the first 3D printer manufacturer providing 3D printing solutions for the shoe industry

1. Prototype (quickly check the appearance and structure of the design)
2. Casting shoe model（replacing wooden model by CNC machining）
3. Soft shoe model (fitting test to check function and comfort degree)
4. Shoe mould production (for small batch production)
5. Finished shoe sole (Customized shoe development and production)
6. Metal shoe molds can be used directly in match sole production

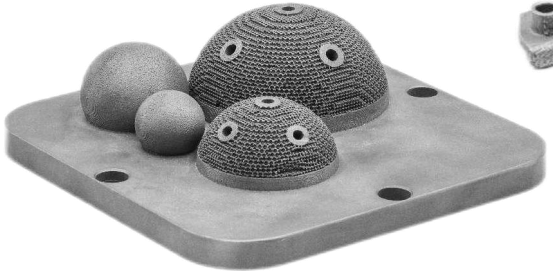




3.4 Industries—Health Care



- 3D printing help to realize complicated designs that cannot be achieved in traditional manufacturing, so as to meet the special requirement of Health care

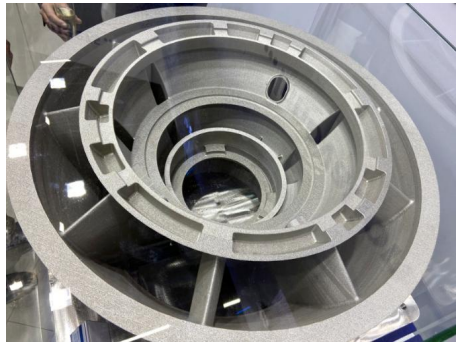


- By introducing 3D printing technology into reconstructive surgery, the 3D printing model can be used to assist in the preoperative simulation of craniofacial surgery, which effectively helps with the three-dimensional reconstruction of soft tissue morphological structures

Kings 3D Printing

Impeller，Turbine Blade，Nuclear power and military industry, orthopedic medicine, and other fields.

More flexible: “complexity comes for free” ,decentralized “on demand” production



04

Honors

4.1|Certificates

4.2|Awards

4.3|Events

4.1 Honors—Certificates

Kings 3D Printing


CIC
Certificate of Registration
Certificate No. 262Q18080810205
Awarded to
Laseradd Technology (Guangzhou) Co.,Ltd.
GB/T19001-2016/ISO9001:2015
SCOPE OF CERTIFICATION/REGISTRATION
Research and development,manufacturing and sales of 3D printing equipment and laser marking machines (except for the required qualification).
The time limit of the certificate is to Aug.09th,2019,please conducting the surveillance or re-certification assessment before Aug.09th,2019.
If the assessment is overdue,the certificate is invalid.
Date from:Aug.10th,2018 To:Aug.09th,2021


CIC
质量管理体系认证证书
广州雷佳增材科技有限公司
北京国认检验认证有限公司(CIC)证明
GB/T19001-2016/ISO9001:2015
认证/注册范围
自2018年08月10日至2021年08月09日


CIC
Certificate of Registration
Certificate No. 262E18080810205
Awarded to
Laseradd Technology (Guangzhou) Co.,Ltd.
GB/T24001-2016/ISO14001:2015
SCOPE OF CERTIFICATION/REGISTRATION
Research and development,manufacturing and sales of 3D printing equipment and laser marking machines (except for the required qualification) and relative management activity on environment.
The time limit of the certificate is to Aug.09th,2019,please conducting the surveillance or re-certification assessment before Aug.09th,2019.
If the assessment is overdue,the certificate is invalid.
Date from:Aug.10th,2018 To:Aug.09th,2021


CIC
环境管理体系认证证书
广州雷佳增材科技有限公司
GB/T24001-2016/ISO14001:2015
认证/注册范围
自2018年08月10日至2021年08月09日


BTK
Certificate of Conformity
The following product has been tested by us with the listed standards and found in conformity with the council EMC directive 2014/30/EU. It is possible to use CE marking to demonstrate the conformity with this EMC Directive.
Applicant: Laseradd Technology(Guangzhou) Co., Ltd
Address: 1F, Building C, No. 23, Hejing South Road, Liwan District, Guangzhou, China
Manufacturer: Laseradd Technology(Guangzhou) Co., Ltd
Address: 1F, Building C, No. 23, Hejing South Road, Liwan District, Guangzhou, China
EUT: 3D Printer
M/N: DiMetal-50, DiMetal-100, DiMetal-300, SLS-400
Test Standards: EN 61000-3-2: 2014 EN 61000-3-3: 2013 EN 55032:2015+AC:2016 EN 55024: 2010+A1:2015
May. 10, 2018
The certificate applies to the tested sample above mentioned only and shall not imply an assessment of the whole production. It is only valid in connection with the products same as the tested sample above mentioned only.


BTK
Certificate of Conformity
The following product has been tested by us with the listed standards and found in conformity with the council LVD directive 2014/35/EU. It is possible to use CE marking to demonstrate the conformity with this LVD Directive.
Applicant: Laseradd Technology(Guangzhou) Co., Ltd
Address: 1F, Building C, No. 23, Hejing South Road, Liwan District, Guangzhou, China
Manufacturer: Laseradd Technology(Guangzhou) Co., Ltd
Address: 1F, Building C, No. 23, Hejing South Road, Liwan District, Guangzhou, China
EUT: 3D Printer
M/N: DiMetal-50, DiMetal-100, DiMetal-300, SLS-400
Test Standards: EN 60950-1:2006+A11:2009+A1:2010+A12:2011+AC:2011 +A2:2013
May. 10, 2018
The certificate applies to the tested sample above mentioned only and shall not imply an assessment of the whole production. It is only valid in connection with the products same as the tested sample above mentioned only.

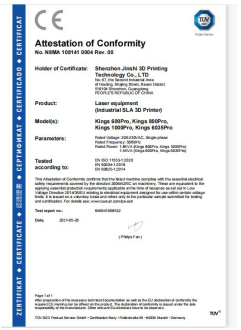

知识产权管理体系认证证书
广州雷佳增材科技有限公司
知识产权管理体系符合标准:
GB/T29490-2013
中知（北京）认证有限公司

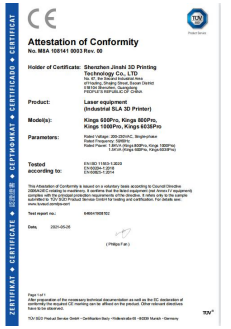

环境管理体系认证证书
GB/T 24001-2004
中国质量认证中心

4.1 Honors—Certificates

RoHS 烤箱

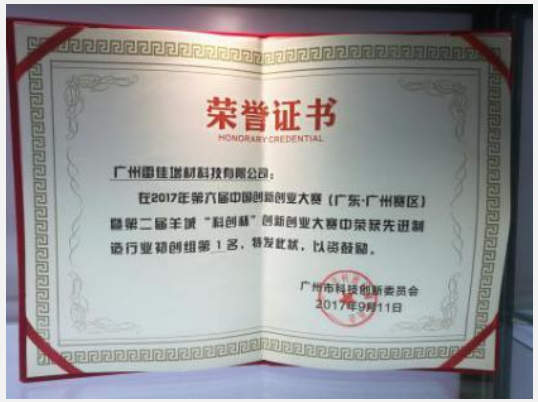
RoHS 打印机系统





4.2 Honors—Awards

Kings 3D Printing

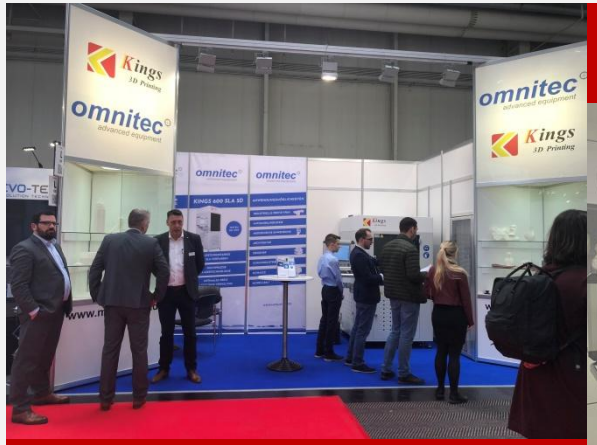


CCTV NEWS

On the list of the first batch of typical application scenarios of additive manufacturing by the Ministry of Industry and Information Technology

CCTV NEWS

4.3 Honors—Events



Germany Formnext

Turkey Shoe Fair

Chinese Shoe Fair

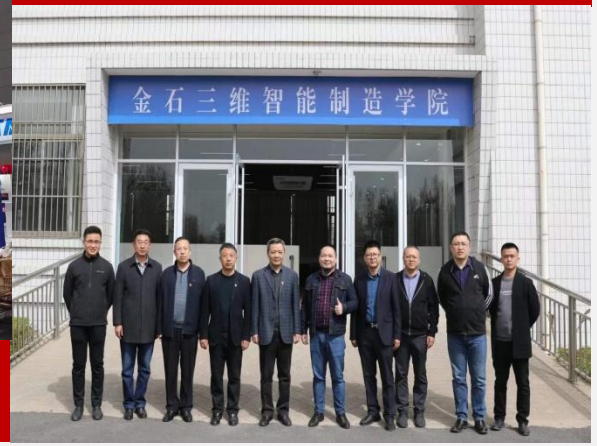
2021 Global Footwear Industry 3D Printing Forum Summit

American TCT Fair

Asia Formnext

Asia TCT Fair

Shandong Engineering Technician College



Thanks!

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Industrial 3D Printers

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3D Printing

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Jiangxi Kings 3D AM Tech Co.,Ltd
Add: Xiangdong District Industrial Park (production base), Xiabu Town, Xiangdong District, Pingxiang City, Jiangxi Province

Shenzhen JS ADD 3D Tech Co. Ltd
Add: Building 1, No. 4, Longshan 6th Road, Luotian Community,Yanluo Street, Baoan District, Shenzhen

Guangzhou Laseradd Technology Co.,Ltd
Add: 7th Floor, No. 886, Tianhe North Road, Tianhe District, Guangzhou City, Guangdong Province

East Wind (DongGuan) 3D Technology Co., Ltd
Add: Building 1, No. 8, Shanglang Road, Chang'an Town, Dongguan City, Guangdong Province

Chongqing Kings Zhicheng Technology Co.,Ltd
Add: Building 13, Linkong Intelligent Industrial Park, Yubei District, Chongqing

Zhejiang Jinzhao Intelligent Technology Co., Ltd
Add: Factory Building 2, Wencheng Industrial Park, No. 330, Zhongnan Section, Fushan Line, Zhongdai Street, Pinghu City, Jiaxing City, Zhejiang Province