



# TDCG

**TDCG** 天通控股股份有限公司  
TDG HOLDING CO.,LTD.

# SAPPHIRE CRYSTAL MATERIAL

蓝宝石晶体材料

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TDG HOLDING CO.,LTD.

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线上商城



微信公众号



证券代码 (Stock Code): 600330

## 公司简介 About Us

天通控股股份有限公司创办于1984年，拥有多家控股公司和参股公司，是国内首家由自然人直接控股的上市公司，是集科研、制造、销售于一体的国家重点高新技术企业。公司目前已经形成电子材料、电子部品、智能装备三大业务板块，业务涵盖电子信息材料产业链上下游。

公司在浙江海宁和宁夏银川建立了蓝宝石产业基地，具有从蓝宝石晶体生长到晶片加工的完整产业链，产品覆盖2-12英寸蓝宝石晶片、各规格光学件，并可根据客户需求进行定制，产品广泛用于LED照明、消费电子等领域，现已发展成为全球蓝宝石行业规模和研发创新能力的领跑者之一。

Founded in 1984, TDG has a number of holding companies and shareholding companies. As the first listed company held by natural person in China, TDG focuses on R&D, manufacturing and sales, and has been recognized by the Chinese government as a national key high-tech enterprise. TDG has formed three major business segments: electronic materials, electronic components, and intelligent equipment, the business covers the entire telecom material industry chain.

TDG established sapphire industrial bases in Haining, Zhejiang and Yinchuan, Ningxia, with a complete industrial chain from sapphire crystal growth to wafer processing. The products have covered 2-12 inch sapphire wafers, optical parts of various specifications, and can be customized according to customer needs. Now TDG's Sapphire Products are widely used in LED lighting, consumer electronics and other fields, and have developed into one of the leaders in the global sapphire industry in terms of scale and R&D innovation capabilities.

## 企业核心竞争力 Core Competitiveness

### 技术优势 Technical Advantages

- 大尺寸晶体研发能力 (Large-size crystal R&D capability)
- 大尺寸晶体量产能力 (Large-size crystal mass production capacity)
- 核心设备自制能力 (Self-made core equipment)
- 车间智能化 (Intelligent Workshop)

### 服务优势 Service Advantages

- 专属销售团队，确保送样快速、交付及时、沟通准确
- 产品可定制化，满足差异性需求

Exclusive sales team to ensure fast sample-sending, timely delivery and accurate communication. Products can be customized to meet differential requirements.

### 规模优势 Scale Advantages

- 完善的产业链布局（育晶-加工-衬底）
- 已形成较大规模的量产和扩产能力

Thorough industrial chain layout. Large-scale mass production and expansion capability.

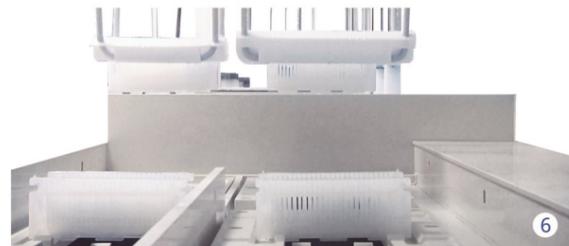
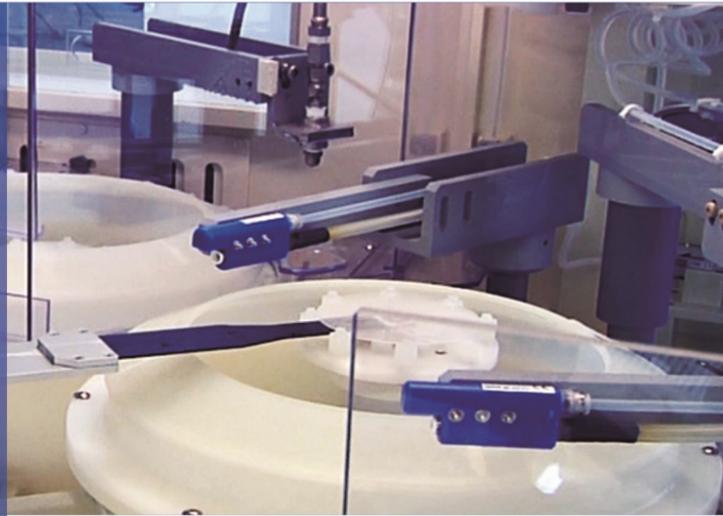
### 体系保障 System Guarantee

- 公司已先后通过或预计通过：(Our qualifications (including system to be qualified))
- ISO9001质量管理体系认证 (ISO9001 Quality Management System Certification)
- ISO14001环境管理体系认证 (ISO14001 Environmental Management System Certification)
- ISO45001职业健康安全管理体系认证 (ISO45001 Occupational Health and Safety Management System Certification)
- ISO5001能源管理体系认证 (ISO5001 Energy Management System Certification)
- IATF16949汽车行业质量管理体系认证 (IATF16949 Automotive Industry Quality Management System Certification)



## 生产设备 Processing Equipment

- ① 育晶  
Crystal Growing
- ② 切片  
Multi Wire Saw
- ③ 双面研磨  
Double-side Lapping
- ④ 单面研磨  
Single-side Lapping
- ⑤ 抛光  
Polishing
- ⑥ 清洗  
Cleaning



## 蓝宝石衬底规格 Sapphire Substrate Specification

性能 Properties	规格 Specification			
	单位 Unit	4英寸衬底 4 Inch Substrate	6英寸衬底 6 Inch Substrate	8英寸衬底 6 Inch Substrate
直径 / Diameter	mm	100±0.1	150±0.2	200±0.2
厚度 / Thickness	μm	660±10	1000±20	1600±20
A面(11-20)取向 / Surface Orientation of A-plane	°	0±0.1	0±0.1	0±0.1
M面(1-100)取向 / Surface Orientation of M-plane	°	0.2±0.1	0.2±0.1	0.2±0.1
定位面长度 / Primary Flat Length	mm	30.0±1.0	47.5±1.0/Notch	Notch
定位面方向 / Primary Flat Orientation	°	A-plane±0.25	A-plane±0.25	A-plane±0.25
背面粗糙度 / Back Side Roughness	μm	1.0±0.2	1.0±0.2	0.8±0.2
正面粗糙度 / Front Side Roughness	nm	≤0.2	≤0.2	≤0.2
倒角 / Edge Grinding	Type	R	T	T
总体厚度偏差 / Total Thickness Variation, TTV	μm	≤7	≤10	≤15
翘曲度 / WARP	μm	≤15	≤20	≤30
弯曲度 / BOW	μm	-10~0	-15~0	-20~0

备注：可根据客户要求定制 Remarks: customization is aviable.

# 蓝宝石晶棒规格 Sapphire Ingot Specification



性能 Properties	规格 Specification			
	单位 Unit	4英寸晶棒 4 Inch Ingot	6英寸晶棒 6 Inch Ingot	8英寸晶棒 8 Inch Ingot
直径 / Diameter	mm	100.2±0.05	150.2±0.05	200.2±0.05
平边长度 / Flat Length	mm	30±1	47.5±1	/
材质 / Material	—	高纯氧化铝/High Purity AL <sub>2</sub> O <sub>3</sub>		
端面晶向 / Crystal Surface Orientation	°	C-Plane ±0.3		
平边晶向 / Primary Flat Orientation	°	A-Plane ±0.2		
每一批次平均长度 / Average Length Per Batch	mm	> 80		
有效长度率 / Effective Length Ratio	—	≥90%		
缺陷 / Defect	—	无包裹物、孪晶、晶界 No Wrappage, Twin Crystal or Crystal Boundary		
崩边、裂纹、气泡 / Broken Edge, Flaw, Bubble	—	崩边、裂纹、气泡所占长度不计入有效长度 Broken Edge, Flaw, Bubbles are not Counted Into Effective length		
位错密度 / EPD	PCS/cm <sup>2</sup>	< 1000		

备注：可根据客户要求定制 Remarks: customization is aviable.

# 检测设备 Inspection Equipment

- 1 光学表面分析仪  
Optical Surface Analyzer
- 2 全反射荧光X射线分析仪  
Total x-ray reflection fluorescence Analyzer
- 3 平坦度测试仪  
Flatness Tester
- 4 X射线表面形态检测仪  
X-ray Surface Morphological Detector

