

NewVape Sapphire Supplier Profile

"Sapphire" The
future of Vaporizer
Dishes



About NewVape's Sapphire Supplier

***** was established in 1994, with focus on the manufacturing of Sapphire crystal for watches, jewelries, mobile phones and various kinds of electronic products. In 2018, there are over 750 workers in our factories which cover 10,000 square meter and are equipped with advanced machines. Producing more than 1.5 million pieces of products per month enables us to acquire an annual turnover of over HKD 4.5 hundred million. We are also certified to the ISO 9001

Our Strengths

- ✓ A self-owned raw material factory in China
- ✓ A monthly output of over 1.5 million pieces of sapphire crystal
- ✓ Over 20 years of experience in sapphire production
- ✓ On-time delivery
- ✓ Compliance with REACH and RoHS standards

Cooperative Partner

CASIO

EBOHR
依波表

RARONE
雷诺

RADO
SWITZERLAND

SEIKO

LG

CITIZEN



TIAN WANG

TISSOT

FIYTA 飛亞達

羅西尼

WITTNAUER
SWISS

HAMILTON
AMERICAN SPIRIT • SWISS PRECISION

DOXA

ENICAR
OF SWITZERLAND

COINWATCH

康斯登
FREDERIQUE CONSTANT
GENEVE

Alpina
1883 GENEVE

BULOVA

GIONEE 金立

Certificate and Qualification

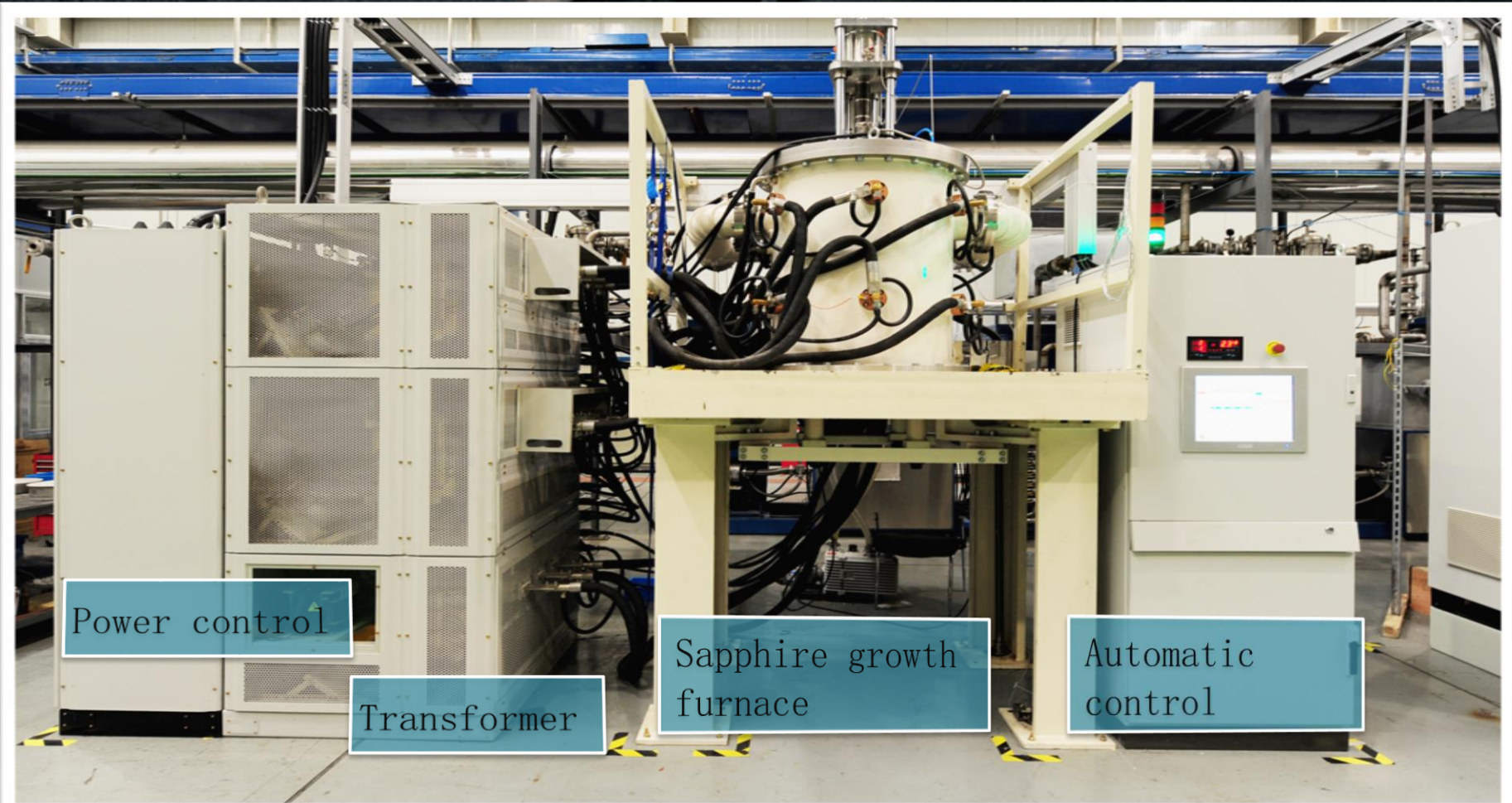


EFG Material





The Structure of Furnace



Power control

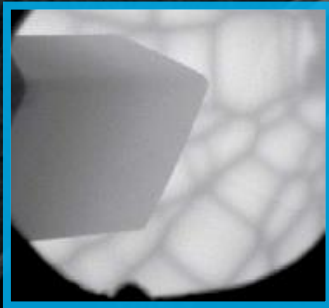
Transformer

Sapphire growth furnace

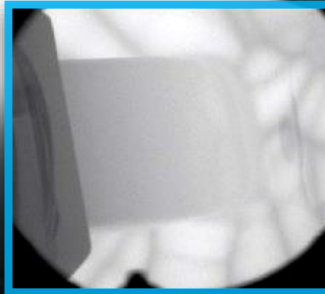
Automatic control

Device	Existing equipment					
	Quantity	Capacity (monthly)				
Furnace	250	25 tons				

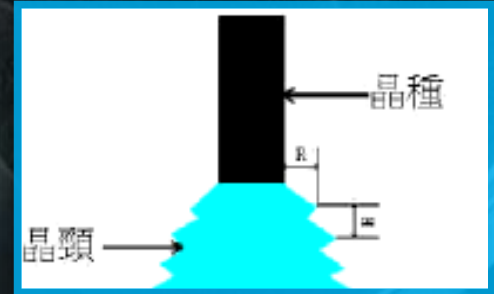
KY Process



Melt



Seeding



Put down



Finish



Complete



主画面 引晶 自动生长

过程控制

生长过程

曲线画面

设备控制

参数设定

报警画面

用户登录

退出系统

项目	当前	中间	设定
功率 (W)	21475.0	49905.0	14887.0
功率给定 (W)	21800.0	80005.0	16000.0
功率给定 (W)	+0.000	+0.000	+0.000

提拉速度设定:	8.0	mm/h
提拉速度:	-80.0	mm/h
旋转速度设定:	5.000	rpm
旋转速度:	-5.0000	rpm
籽晶位置:	-43.82	mm
液面计速度:	0.0	°C
真空度:	3.3e-004	torr
炉内温度:	1928.9	°C
A 籽晶:	8141.7	°C
B 籽晶:	7807.9	°C
生长速率:	8.022	g/h
晶体重量:	9.0	g

Automatic growth



Raw Material for Watch

KY (Kyropoulos)

Edge Defined Film-Fed Growth (EFG)

Flame fusion




Sapphire Characteristics:

Sources of material		China
Physical properties		
Colour		whire(sapphire) red(ruby) >50 colours
Composition		Al ₂ O ₃ + Cr ₂ O ₃ (ruby) 99.99% Al ₂ O ₃ (whited sapphire)
Crystal structure		hexagonal- rhombohedral
Cleavage		conchoidal
Density		3.98 to 4.1 g/cm
Dislocation density	cm ⁻²	10 ⁴ to 10 ⁵
Porosity		0
Surface smoothness (Ra) -after lapping		0.5
-after polishing		0.05 to 0.015
Mechanical properties		
Hardness - mohs (normal scale)		9
- Vickers (200 p)	daN /mm ²	2000 to 2500
- knopp (200 p)	daN /mm ²	1800 to 2200 to c 1175 to 1380 // to c
Tensile strength	daN /mm ²	26
Flexural strength	daN /mm ²	35 to 39
Compressive strength	daN /mm ²	210
Young's modulus E	daN /mm ²	3.6 · 10 ⁴ to 4.4 · 10 ⁴
Poisson's ratio		0.32 to 0.36
Thermel properties		
Max. use temperature	°C	1800 to 1950
melting temperature	°C	2050
specific heat	J / kg k	753
coefficient of 11near thermal expansion at 20°C	°C-1	6.2 · 10 ⁻⁶ // to c
	°C-1	5.4 · 10 ⁻⁶ to c
Thermal conductivity at 20°C	w / m k	41.9
Optical properties		
<i>n_o</i> (refraction index to λ =589.3nm)		1.760 // to c 1.769 to c
Chromatic dispersion <i>n_f</i> — <i>n_c</i>		
<i>n_f</i> = <i>n</i> t 656.3 nm . <i>N_c</i> = <i>n</i> at 486.1 nm)		0.011
Constringence (1 / relative dispersion)		
(Abbe's number)	<i>v_o</i> = <i>n_o</i> -1 / <i>n_f</i> - <i>n_c</i>	72

Process of Production

1. Cutting > QC >
2. Outer sharp polish > QC >
3. Rough Polish the Top & bottom sides > QC >
4. Bevel polish > QC >
5. Bevel Shiny > QC >
6. 2nd Polishing the Top & bottom sides > QC >
7. Shiny Polish the Top & bottom sides > QC >
8. Metallization / Anti-reflective coating (if needed) > QC



Machine and Facilities

CNC Machine



Thinning (section)



Automatic Printing machine



Dryer Machine



Laser

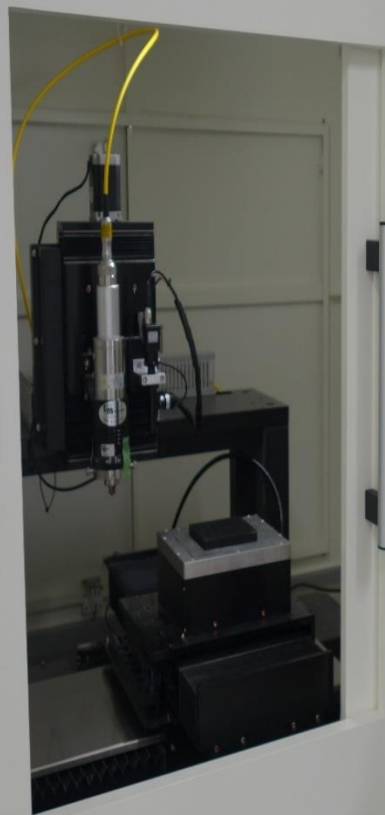
重点管控

一、基本要求

1. 操作人员必须经过专业培训，持证上岗。
2. 操作人员必须穿戴防护用品，如护目镜、手套等。
3. 操作人员必须熟悉设备的操作规程，严禁违章操作。
4. 操作人员必须定期检查设备的运行状态，发现问题及时处理。

二、操作事项

1. 开机前检查：检查设备电源是否正常，检查冷却水是否充足，检查安全防护装置是否完好。
2. 加工前准备：根据加工要求，选择合适的加工参数，设置加工程序。
3. 加工过程监控：密切观察加工过程，发现异常立即停机。
4. 加工后处理：加工完成后，及时清理加工现场，做好设备维护保养。



String Laser



Polishing Machine



Burnish Machine (Big size)



Ultrasound Cleaning



Vacuum Metallization Machine



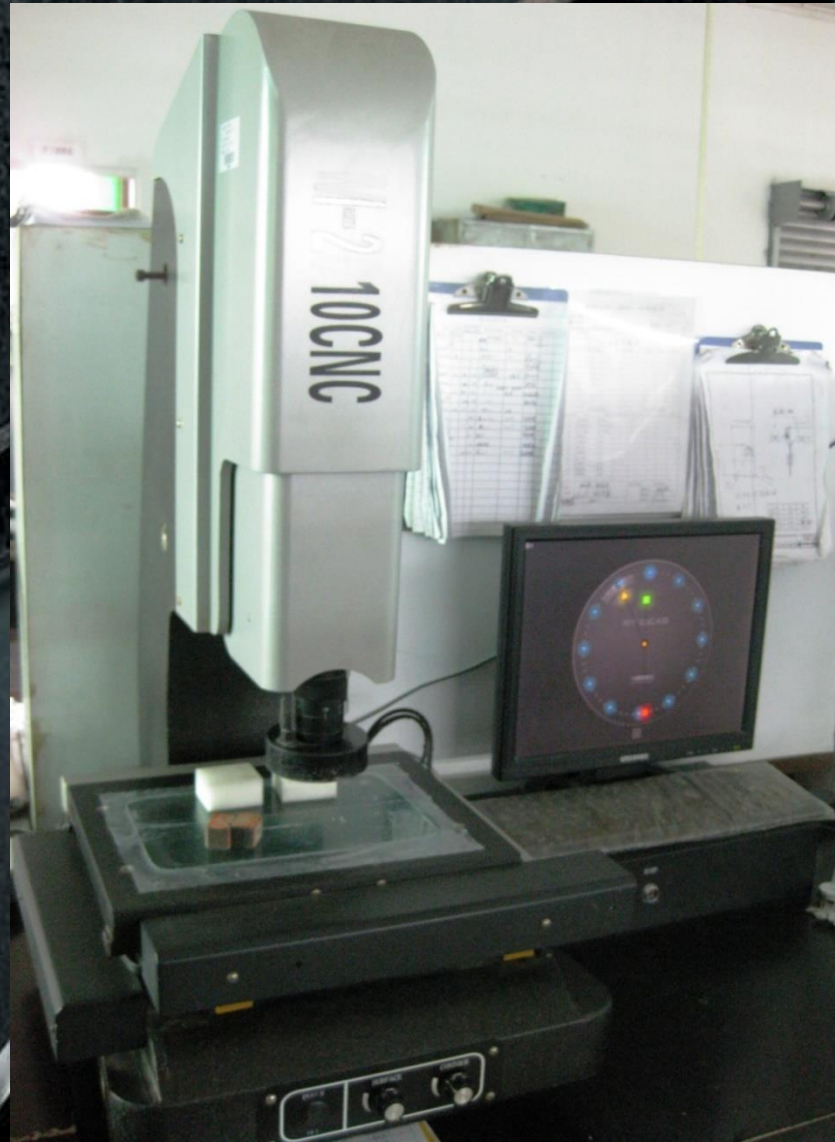
Anti-reflective Coating Machine





Inspection and Testing Machine

Projector



Testing



Computer Measurement



Temperature testing Machine



Hardness Measurement System



PARTS INSPECTION REPORT

Customer Name :

Name of Parts :

Red Oval

Test Content

Process

Requirement of Hardness

Serial No.

Sample

Hardness

The result of Test in Sample 1

Frequency of Test: 2

1.Load: 50g Hardness HV:2091.90

2.Load: 50g Hardness HV:2084.27

Average Hardness HV: 2088.08

Inspector: Amy Wong

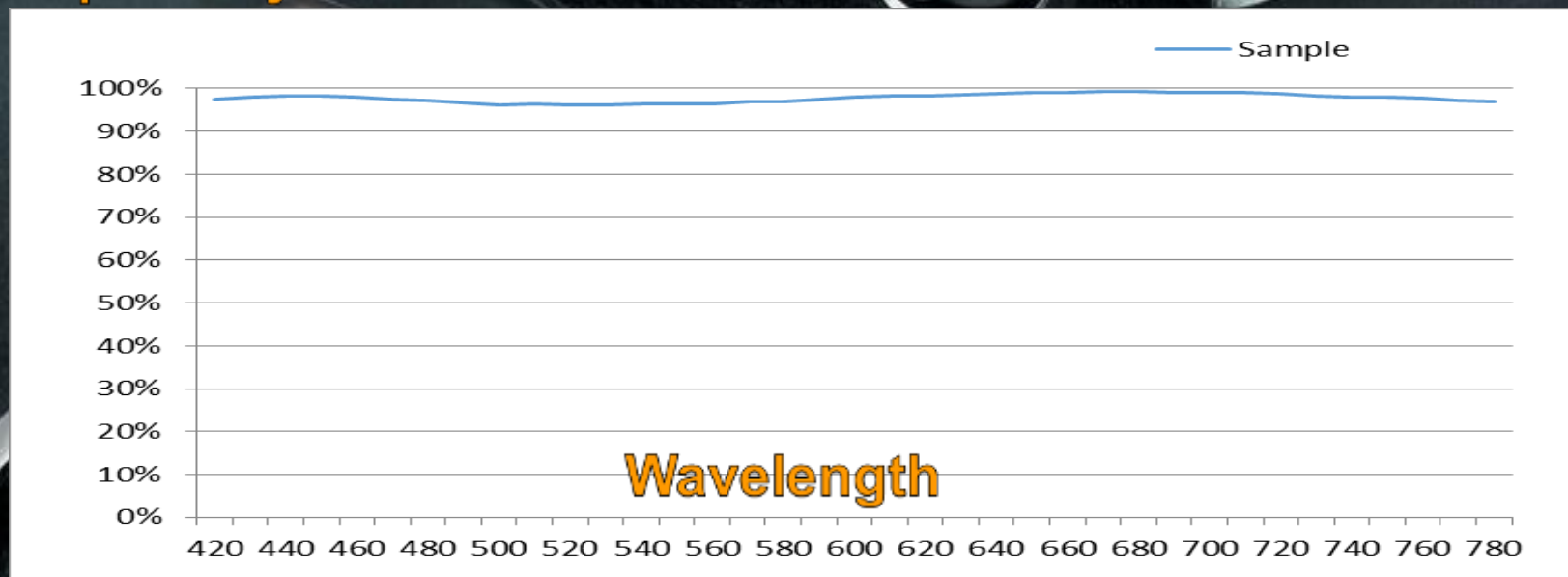
Approved by : .KY Lee

Inspection Date: 27 Feb 2016

Spectrometer



Transparency



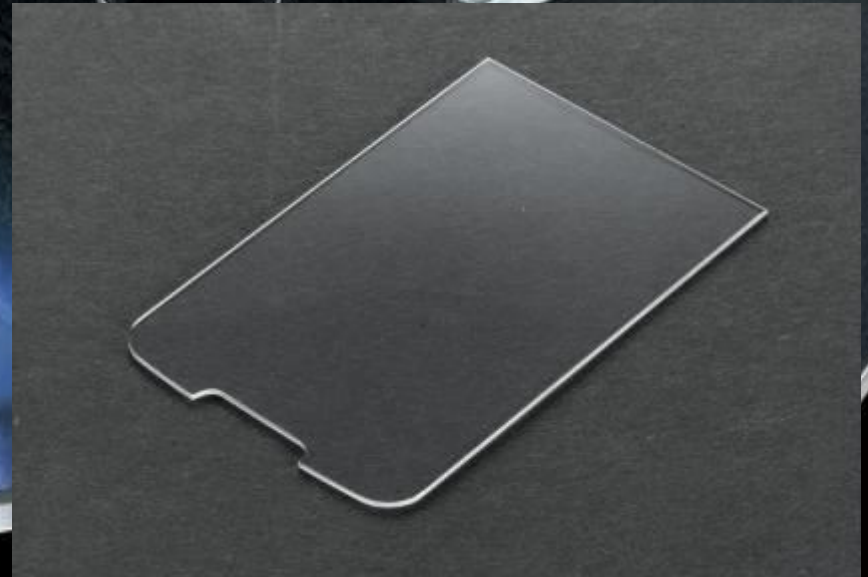
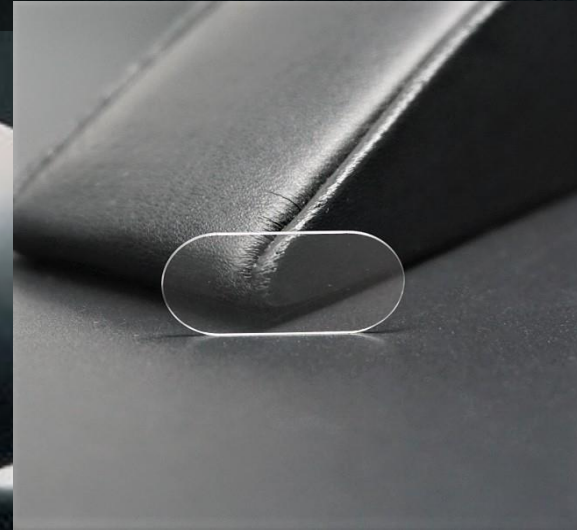
Quality Control in Clean Room



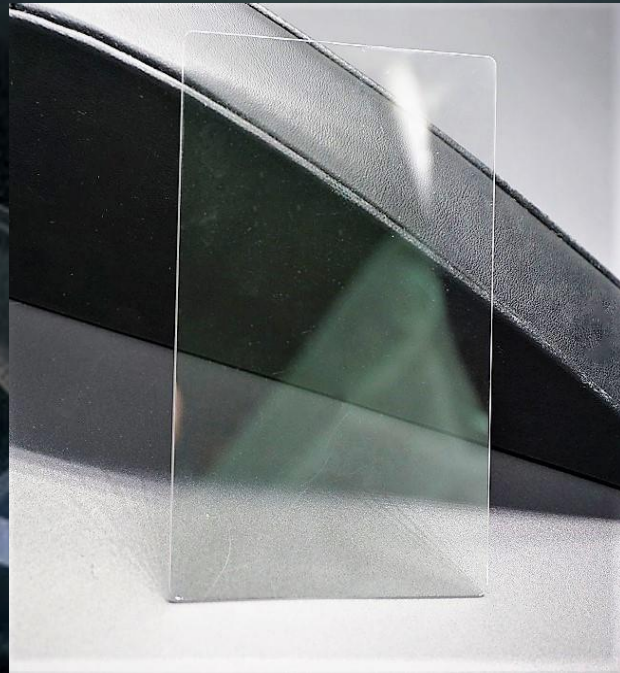


Our Products

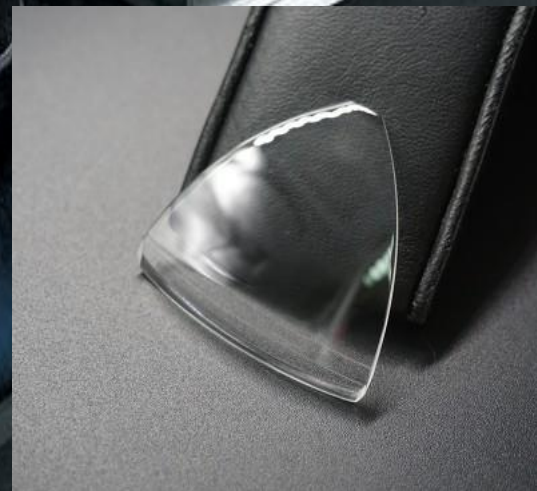
Mobile Phone products

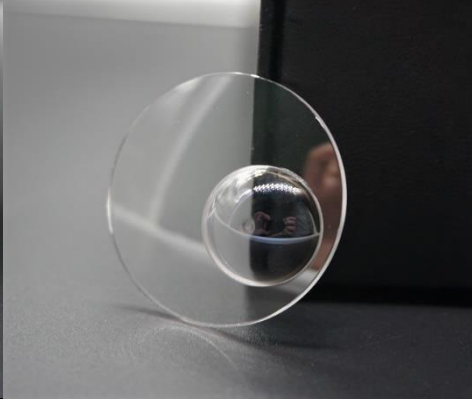
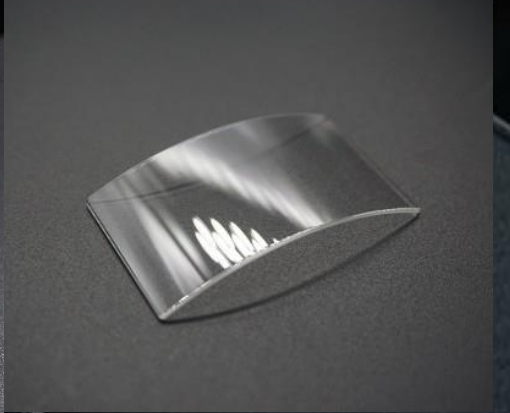
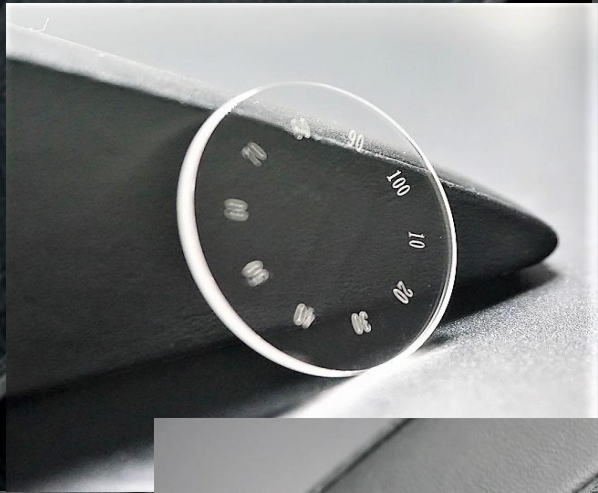


Sapphire Screen

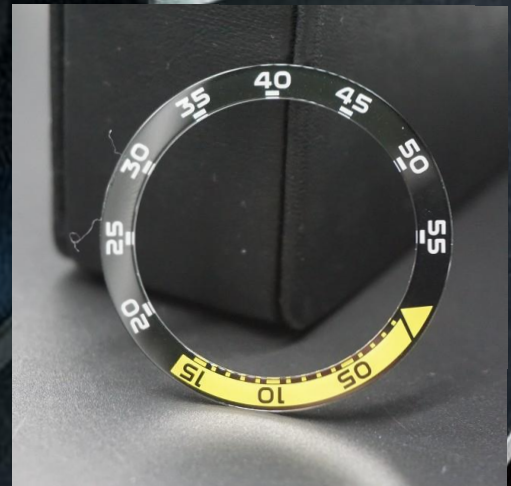


Watch Products





Watch Products

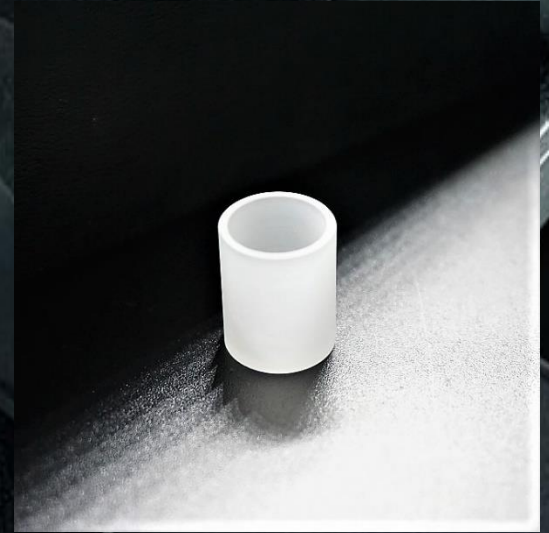
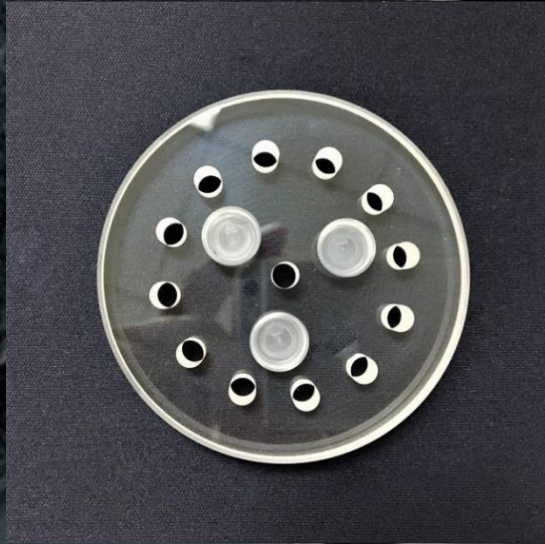




Sapphire Jewelry



Electronic Components



Company Improvement proposal

Automated Production Line

- **Production Process**
- **Automated Machine**
- **Research and Development**
- **Control Costs**
- **ISO/TC114/SC13 N12 – AR coating**
- **Quality Control**