



KemaTek™ Technical Ceramics

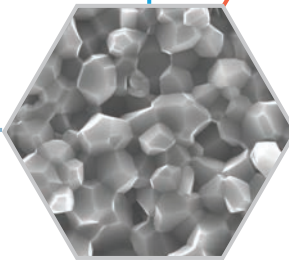
High-Purity
Technical
Ceramics



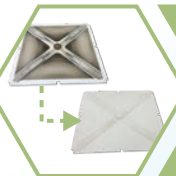
Advanced
Surface
Treatments



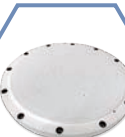
Flat Panel
Display
Components



Refurbishment
Services



Heater
Components



INTRODUCTION

Customer Centric

Established in 2009, KemaTek Technical Ceramics is an independently owned global company specializing in advanced ceramics and surface treatments. We consistently place the customer above all else. In particular, we work with high-technology manufacturers requiring superior levels of quality, ultra-pure materials, and consistent and reliable service.

Vertically Integrated

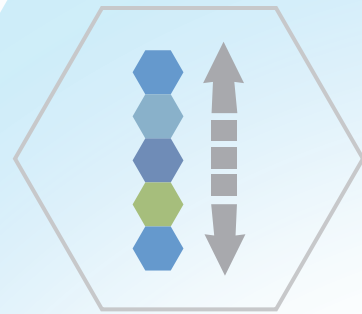
To achieve these levels of quality, purity, and service, KemaTek vertically integrates each of the critical elements required for consistent manufacturing. Owning every step of the advanced ceramic and surface treatment processes from research and development all the way through to precision cleaning and packaging of finished goods, KemaTek ensures each step is done with exceptional care and attention.

Preserving Customer IP

Our customers require highly secure control of their intellectual property. KemaTek employs state-of-the-art IP protection technologies and processes to ensure our customer's IP is never at risk.

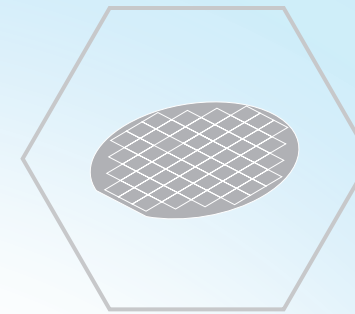
Growth for Customer Needs

KemaTek continues to expand its product and service offering as customer needs grow. Continuous investment in R&D, facility capabilities, and technical personnel enable world-class support for our customers.



Vertical Integration

KemaTek is a vertically integrated, advanced materials solution provider. Owning every step of the process from materials research & development to powder preparation, sintering, machining, cleaning, & final inspection gives KemaTek the ability to monitor and tightly control every step in the process.



Technology Driven

KemaTek is committed to high-technology markets and invests heavily in research & development, process integration, and advanced manufacturing technologies



Advanced & High-Purity Materials

KemaTek specializes in high-purity, advanced materials components to support the most demanding customer applications



Superior Service

Our culture is committed to provide superior service and enables each of our team members to ensure customers receive excellent care



Integrity

- IP protection focus
- Clear communication
- ISO certification
- Highly-trained personnel



Customer Centric



Global

KemaTek serves industry-leading customers around the globe with world-class components and integrated assemblies

CONTENTS

Manufacturing Process	4
Technical summary	6
Quality management	7
Markets served	20

Vertically Integrated Materials:	
Aluminas	8
Aluminum nitrides	9
Zirconias	10
Zirconia toughened aluminas	11
Silicon carbide	12

Sourced Materials:	
Silicon nitride	13
Conductive ceramics	13
Machinable ceramics	13
Quartz	13
Sapphire	13

Ceramic Material Properties	22
------------------------------------	----

Flat-Panel Display Components	
Introduction	14
New components	15
Refurbished components	15

Heater Components	
Advanced Heater Components	16

Surface Treatment Services and Capabilities	
Overview	17

Advanced Refurbishment Services	
Precision cleaning	18
Coating	19
Resurfacing	19
Surface treatment	19
Cleanroom packaging	19

Company History	24
Locations	24

TECHNICAL CERAMICS

State-Of-The-Art Equipment

With our customer's future needs in mind, our innovative, continuous-improvement culture drives consistent investment in leading-edge technologies, processes, and equipment. KemaTek uses advanced powder processing, forming, sintering, CNC machining, and quality control equipment to ensure the highest quality components.

ISO 9000 Certification

KemaTek complies with ISO and other industry Best Known Methods (BKMs) to meet the high standards of advanced-technology markets like semiconductor manufacturing equipment, medical, energy, and automotive.

Capable and Dedicated Teams

KemaTek retains a technical advantage, a high level of engineering involvement in every project, and quality service for its customers.

Process Integration

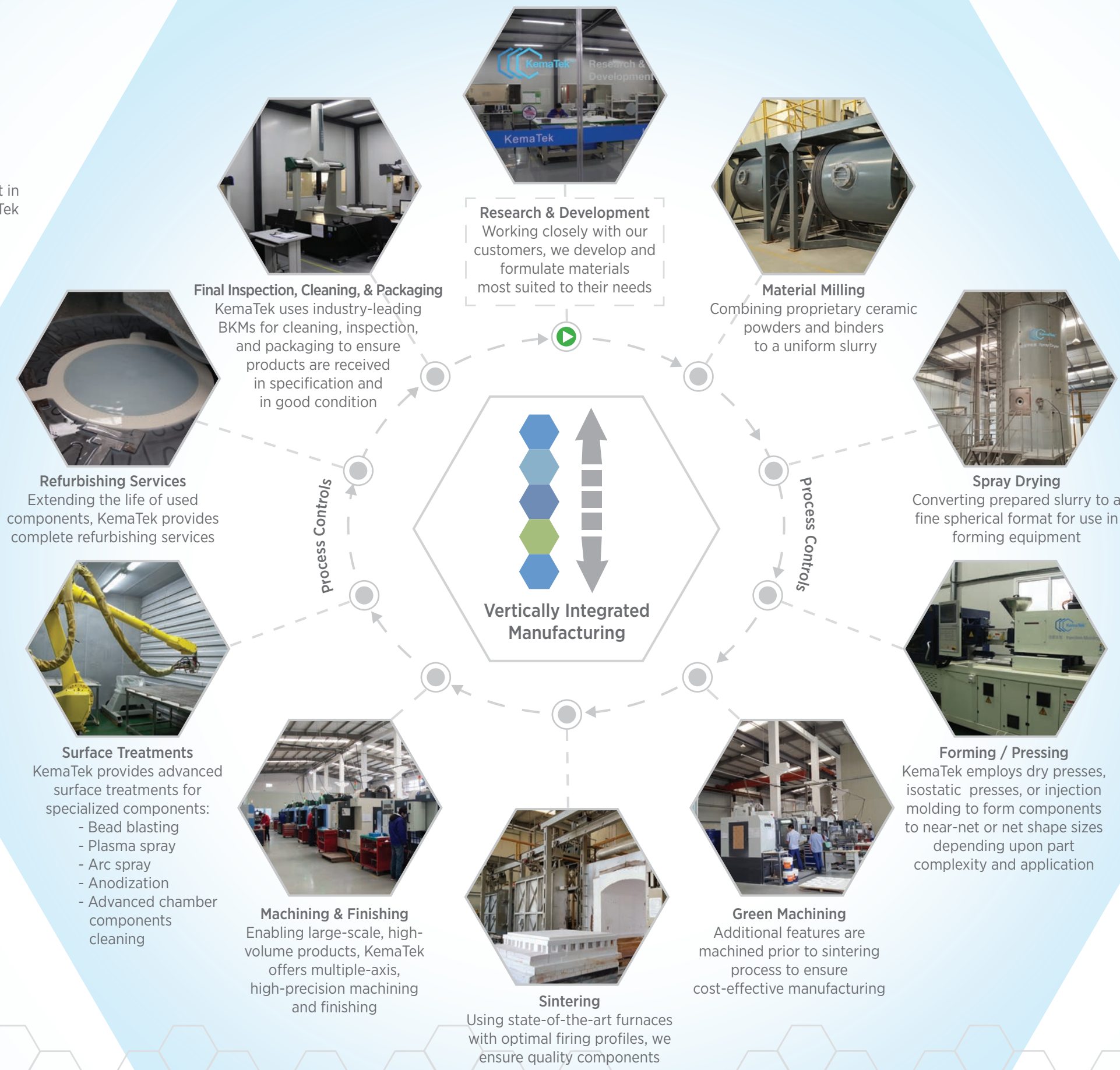
KemaTek has a wide array of capabilities. Each of these offer our customers a higher level of integration and customization:

- Refurbishment services
- Plasma spray for multiple materials
- Assembly services

Additional Services

Building the premier one-stop provider, KemaTek continues to invest in technologies for value-added services including:

- Specialized surface treatments
- Precision cleaning & refurbishing
- Assembly services
- Cleanroom packaging



Final Inspection, Cleaning, & Packaging
KemaTek uses industry-leading BKMs for cleaning, inspection, and packaging to ensure products are received in specification and in good condition



Research & Development
Working closely with our customers, we develop and formulate materials most suited to their needs



Material Milling
Combining proprietary ceramic powders and binders to a uniform slurry



Spray Drying
Converting prepared slurry to a fine spherical format for use in forming equipment



Forming / Pressing
KemaTek employs dry presses, isostatic presses, or injection molding to form components to near-net or net shape sizes depending upon part complexity and application



Green Machining
Additional features are machined prior to sintering process to ensure cost-effective manufacturing



Sintering
Using state-of-the-art furnaces with optimal firing profiles, we ensure quality components



Machining & Finishing
Enabling large-scale, high-volume products, KemaTek offers multiple-axis, high-precision machining and finishing



Surface Treatments
KemaTek provides advanced surface treatments for specialized components:
- Bead blasting
- Plasma spray
- Arc spray
- Anodization
- Advanced chamber components cleaning



Refurbishing Services
Extending the life of used components, KemaTek provides complete refurbishing services

Technical Ceramics

Flat-Panel Display

Heater Components

Surface Treatment

Refurbishment

TECHNICAL SUMMARY

Research & Development Labs

KemaTek offers dedicated researchers and well-equipped labs to develop new materials supporting our customer's ever changing material requirements.

Material Properties Testing

- Mechanical
- Physical
- Thermal
- Electrical
- Chemical

Vertically Integrated Material Preparation

From formulation and characterization to milling and spray drying, KemaTek makes its own high-purity ceramic materials.

Surface Treatments

KemaTek utilizes a wide range of advanced surface treatments to transform semiconductor and flat panel display ceramic chamber components to extend equipment lifecycle.

Forming Technologies

- Isostatic press: Plates up to 2300 mm long (sintered)
- Dry press
- Injection molding: Mass volume small, complex, precision parts
- Extrusion for silicon carbide materials

Advanced Sintering

- Length up to 1,600 mm (63 inch)
- Height up to 1,000 mm (40 inch)

Precision Grinding

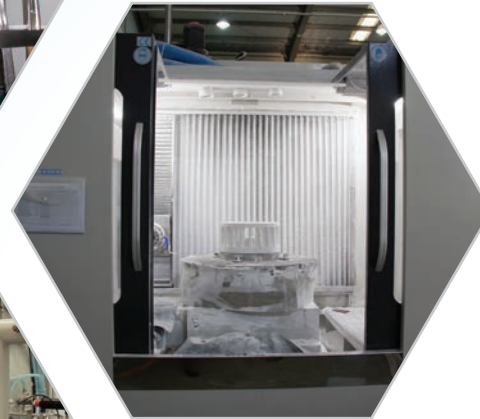
- Length up to 3,800 mm (149 inch)
- O.D. up to 800 mm (31.5 inch)
- CNC length up to 1,500 (59 inch)

Surface Grinding

Large-format precision grinding for high-volume production

Dimensional Precision and Tolerances

- As sintered: $\pm 1\%$ (up to ± 0.3 mm)
- Flatness: $\leq 3 \mu\text{m}/\Phi 485$ mm
- Cylindricity: $\leq 2 \mu\text{m}/\Phi 200 \times \text{L}350$ mm
- Surface roughness: Ra 0.01 ~ Ra 0.2 or equivalent
- Hole diameter capability: $\Phi 0.3$ mm



KemaTek is continuously upgrading our capabilities. For the latest specific maximum dimensions and configurations, please visit our website and/or contact a KemaTek sales representative.

QUALITY MANAGEMENT

Introduction

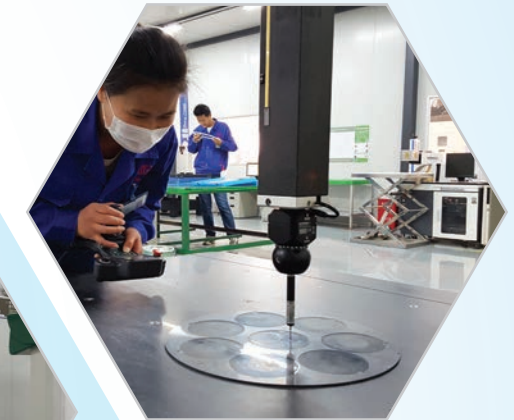
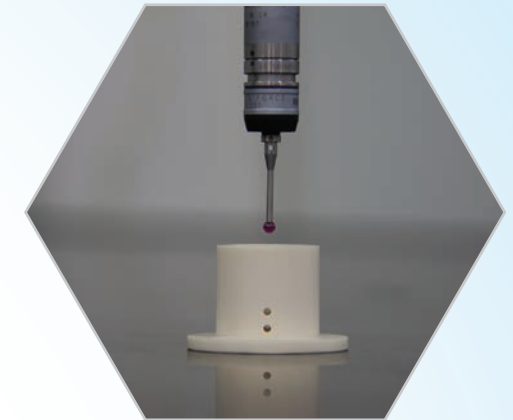
The KemaTek Quality Management System is second to none. We use state-of-the-art equipment and follow third-party audited, industry-leading standards throughout our processes including a safeguarded all-electronic quality monitoring system.

Certifications:

- ISO9001:2015 — Quality Management System Certification
- ISO14001:2015 — Environmental Management System Certification
- ISO27001: Information Security
- ISO45001: Health & Safety
- IATF16949: Continuous Improvement



Quality & environment system certification of the international authoritative organization GIC



State-of-the-art Coordinate Measurement Machines (CMMs)

Our equipment includes large-scale automatic CMMs, precision image measuring instruments, and high-precision flatness measuring instruments.

Technical Ceramics

Flat-Panel Display

Heater Components

Surface Treatment

Refurbishment

MATERIALS

ALUMINAS

Aluminum Oxide Al_2O_3

One of the most robust technical ceramic materials, high-purity aluminas feature enhanced corrosion and wear resistance. Microstructures and electrical resistivity can be tuned to specific applications.

Primary Features

- Electrical insulating properties
- Heat resistance
- Wear resistance
- Electrical insulator
- High dielectric strength
- Low dielectric loss
- Corrosion resistance
- Plasma resistance

Applications

- Semiconductor manufacturing equipment components (high-purity)
- Medical components
- Electrical insulation
- Wear-resistant components
- Machinery
- Fluid handling

Materials

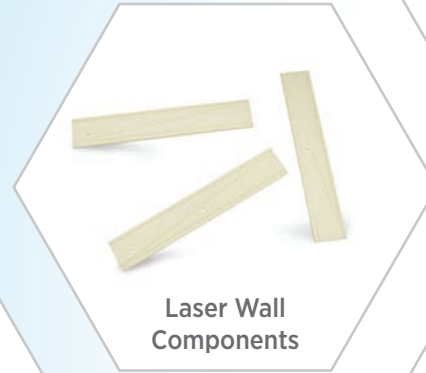
- KMT-97 — >96% Al_2O_3
- KMT-998 — >99.8% Al_2O_3
- K1 — >99.8% Al_2O_3
- KMT-999 — >99.9% Al_2O_3



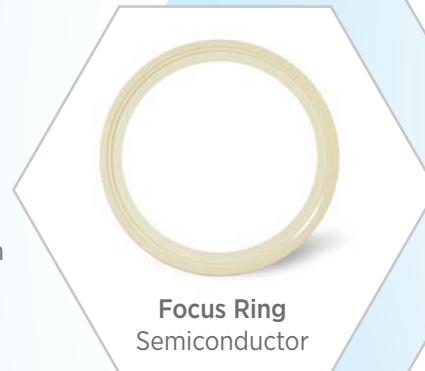
Dome
Semiconductor



Valve Components
Fluid Handling



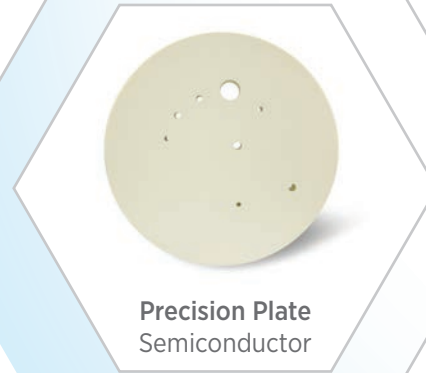
Laser Wall Components



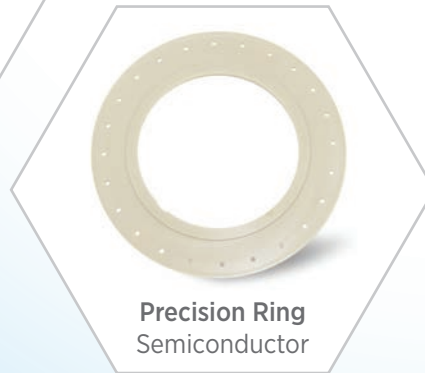
Focus Ring
Semiconductor



Nozzles
Semiconductor



Precision Plate
Semiconductor



Precision Ring
Semiconductor

MATERIALS

ALUMINUM NITRIDES

AlN

Aluminum nitrides (AlN) combine excellent thermal conductivity and high thermal shock resistance with superior electrical insulation. Aluminum nitrides provide electrical insulation while also dissipating heat effectively in applications where other ceramics are prone to thermal shock. Typical applications include high temperature, high-intensity light emitting diodes (LEDs), and semiconductor manufacturing equipment applications.

Primary Features

- Thermal conductivity
- Thermal stability and shock resistance
- Electrically insulative
- Plasma resistance

Applications

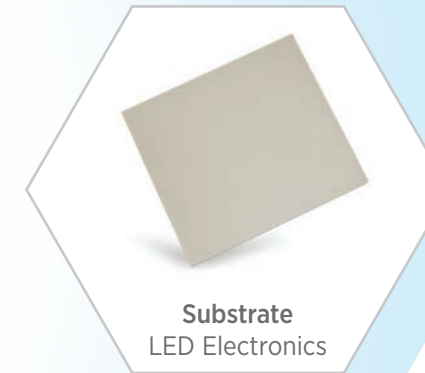
- Semiconductor manufacturing equipment components
- Electronic substrates
- Heater components
- Transportation components

Materials

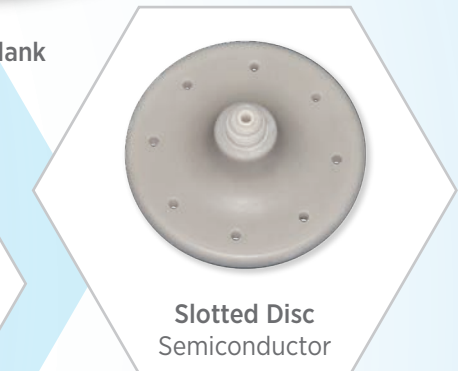
- KMT-AlN (A1) — >96% AlN
- KMT-AlN180 (T) — >96% AlN
- KMT-AlN (P1) — >99.5% AlN



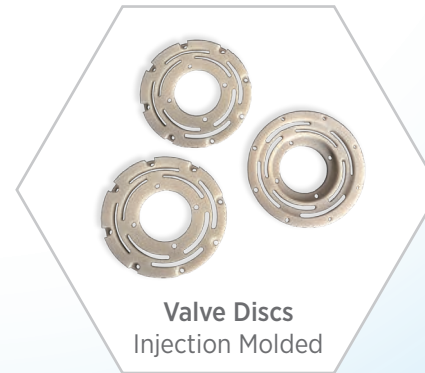
Rod Blank



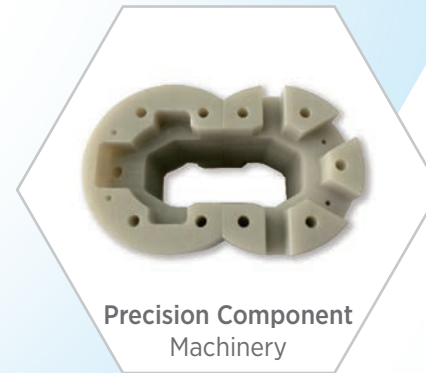
Substrate
LED Electronics



Slotted Disc
Semiconductor



Valve Discs
Injection Molded



Precision Component
Machinery



Cooling Box
Transportation

Technical Ceramics

Flat-Panel Display

Heater Components

Surface Treatment

Refurbishment

MATERIALS

ZIRCONIAS Zirconium Oxide ZrO_2

Known for their high mechanical strength and fracture toughness, zirconias are ideal for extreme mechanical environments, particularly impact-prone applications. Certain zirconia compositions provide enhanced fatigue-loading resistance.

Yttria-stabilized zirconia's properties include exceptional toughness, flexural strength, and high-temperature stability.

Primary Features

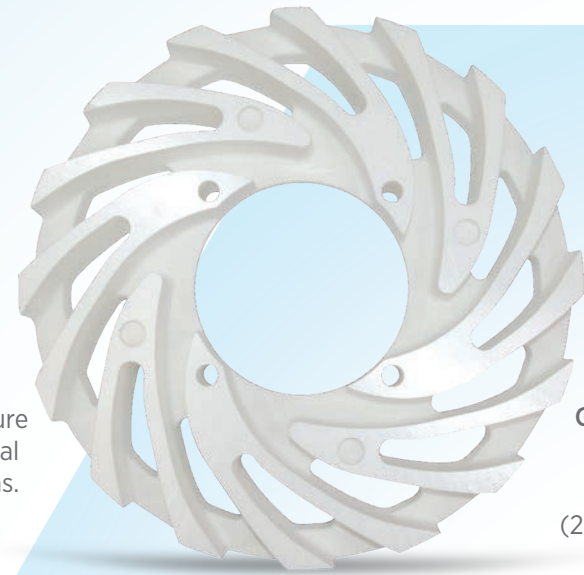
- High mechanical strength
- Enhanced fracture toughness (impact resistance)
- Mechanical strength
- High-heat resistance
- Thermal expansion near metal
- Corrosion resistance
- Natural lubricity

Applications

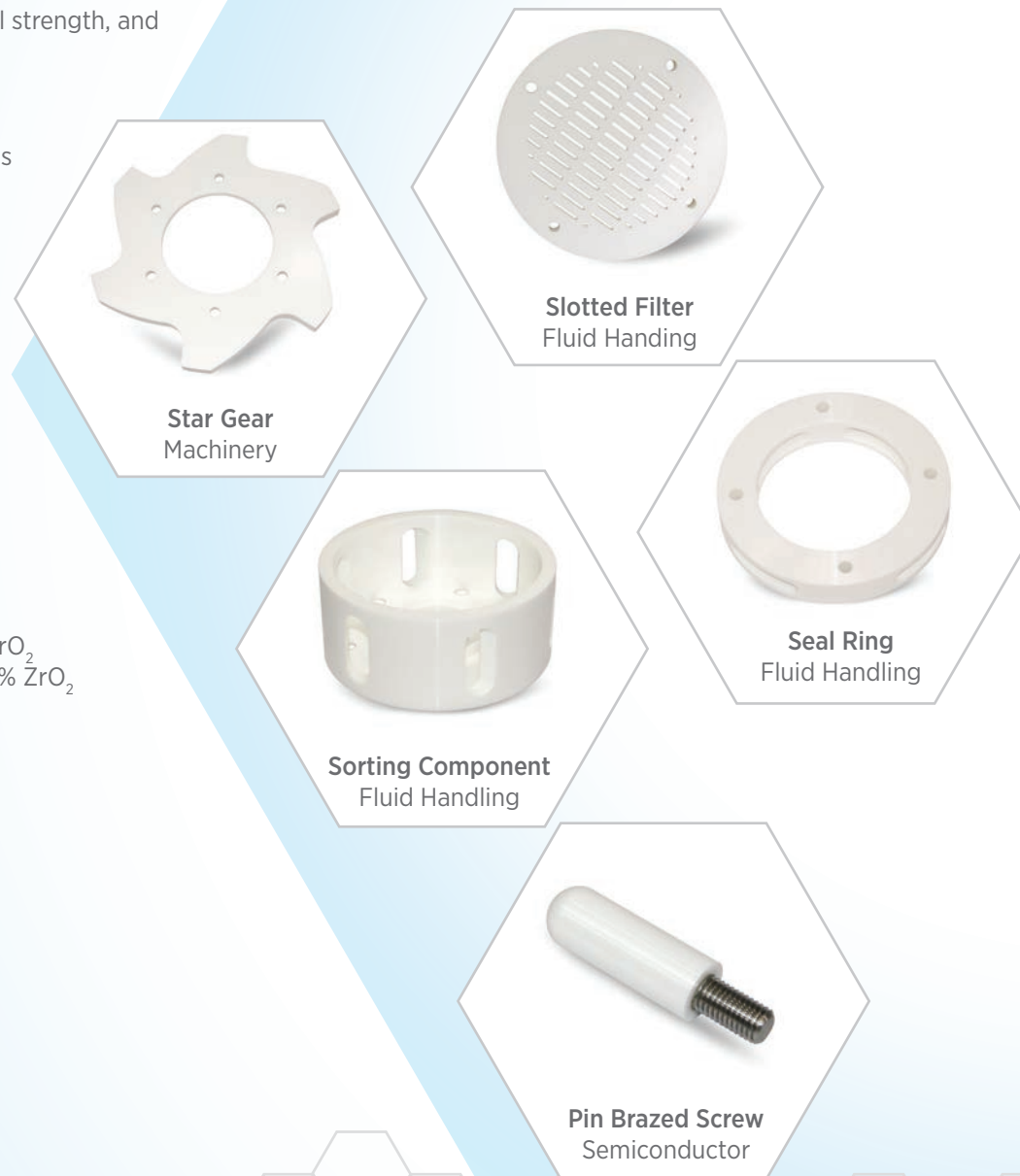
- Wear-resistant components
- Mechanical components
- Tools and molds
- Fluid handling
- Heat insulation material

Materials

- KMT- ZrO_2 (YTZP) — >95% ZrO_2
- KMT- ZrO_2 (YTZP-MS) — >95% ZrO_2



Grinding Wheel Machinery
Up to 710 mm (28 inch) diameter



MATERIALS

ZIRCONIA TOUGHENED ALUMINA ZTA

Zirconia toughened alumina is a composite ceramic material comprising alumina and zirconia. This material provides added strength and thermal shock resistance over alumina but at less cost than zirconia.

ZTA composites are commonly used in structural applications, cutting tools, and medical applications. Additionally, ZTA composites feature high strength, fracture toughness, elasticity, hardness, and wear resistance.

Primary Features

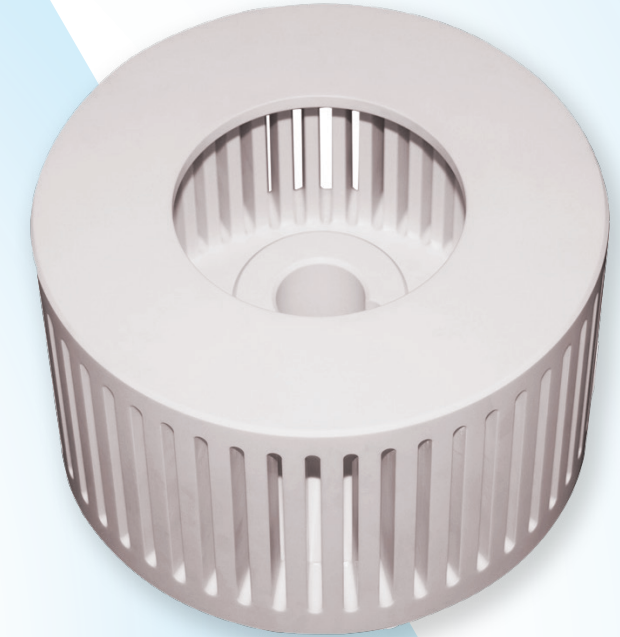
- Improved strength over alumina
- Impact resistance
- Thermal resistance
- Improved hardness

Applications

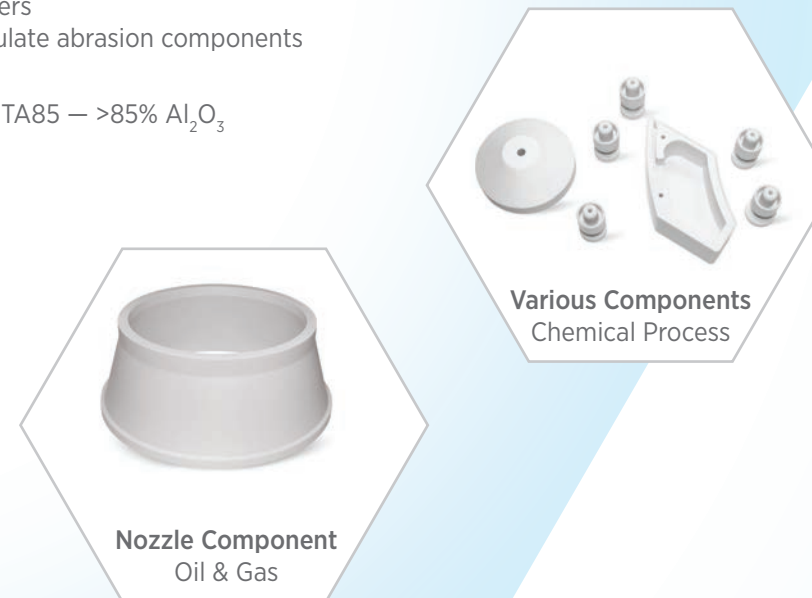
- Wear components
- Pump components
- Valves
- Impellers
- Particulate abrasion components

Material

- KMT-ZTA85 — >85% Al_2O_3



Filter Component Fluid Handling



MATERIALS

SILICON CARBIDE SiC

Silicon Carbides offer exceptional hardness, corrosion resistance, wear resistance, superior strength, excellent thermal conductivity, and maintains good mechanical properties at high temperatures.

Primary Features

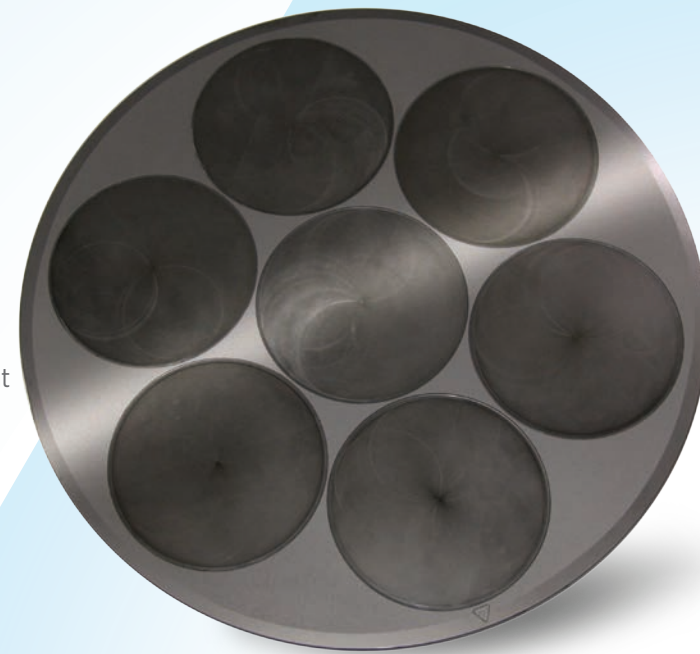
- High hardness
- Wear resistance
- Excellent mechanical properties at high temperature
- Corrosion resistance
- High strength
- Excellent thermal conductivity
- Good thermal shock resistance
- Best stiffness to weight ratio

Applications

- Semiconductor manufacturing equipment components
- High-temperature components
- Sealing components
- Wear-resistant components
- Components requiring high-stiffness

Materials

- KMT-SSiC
Direct Sintered SiC
>99.9% SiC
- KMT-SSiC (P)
High-Purity Direct Sintered SiC
>99.96% SiC
- KMT-SiSiC
Siliconized SiC
>99.9% SiC



Wafer Carrier
Semiconductor



Sleeve
Oil & Gas



Tall Sleeve
Oil & Gas



End Effector
Semiconductor

MATERIALS

SILICON NITRIDE Si₃N₄

Silicon nitrides have a unique grain structure which delivers high strength, toughness, and very good thermal shock resistance — making it ideal for applications with high dynamic stresses, thermal stress, and high reliability requirements. This unique combination of material properties provides advantages in severe-service applications such as turbines and high-end ball bearings.

Primary Features

- Wear resistance
- Corrosion resistance
- High mechanical strength and toughness
- Electrically insulating
- Thermal shock resistance

Applications

- Wear-resistance components
- Semiconductor manufacturing equipment components
- High-temperature components

Material

- KMT-SiN — >97% Si₃N₄



Seal Ring
Fluid Handling



Seal Face
Oil & Gas



Custom Component
Machinery

ADDITIONAL MATERIALS

- Sapphire
- Quartz
- Machinable Ceramics
- Conductive Ceramics
- Customer-specific formulations available

Technical Ceramics

Flat-Panel Display

Heater Components

Surface Treatment

Refurbishment

FLAT-PANEL DISPLAY

INTRODUCTION

KemaTek offers state-of-the-art, large-format (up to G10.5) display and single wafer chamber component manufacturing and refurbishing services. KemaTek closely follows industry established procedures and ensures every component and assembly meets or exceeds customer requirements.

Capabilities

- Large-format manufacturing equipment (G10.5)
- Precision cleaning for FPD — high volume
- Complete refurbishment processes
- Rigorous quality assurance program



VERTICALLY INTEGRATED NEW COMPONENT MANUFACTURING

Large-Format, High-Purity Alumina Components
Mass production capabilities >3800 mm.

Parts for:

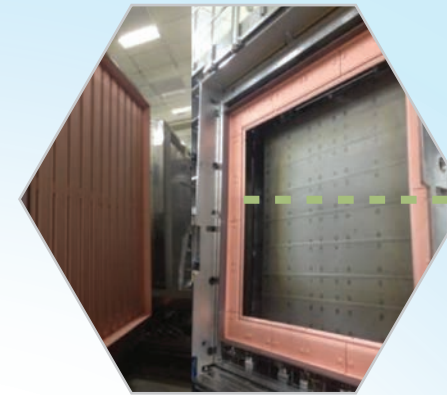
- CVD
- PVD
- Etch

Dry Etch Electrodes

- Highly automated
- G10.5 metal machining

Components

- Diffusers
- Susceptors (refurbish only)
- Backing Plates
- Shadow Frames



Before



After

COMPLETE DISPLAY COMPONENTS REFURBISHMENT SERVICES

Comprehensive Refurbishment Gives Old Parts New Life!

KemaTek provides all the services required to make your older components fully functional and operating like new.

- CVD & PVD ceramic components
- Diffusers & susceptors
- Etch components
- Upper and lower electrodes

Services & Capabilities

- Chemical strip and clean
- Fully-automated bead blasting
- Fully-automated plasma spray
 - Materials:
 - Yttrium oxide — Y_2O_3
 - Yttrium fluoride — YF_3
 - Yttrium oxyfluoride — YOF
 - Alumina — Al_2O_3
- Twin-Wire Arc Spray (TWAS)
- Anodizing
- Wet blasting



Refurbished display components

HEATER COMPONENTS

WAFER PROCESSING HEATER COMPONENTS

KemaTek manufactures aluminum nitride heater components for next-generation semiconductor processing equipment.

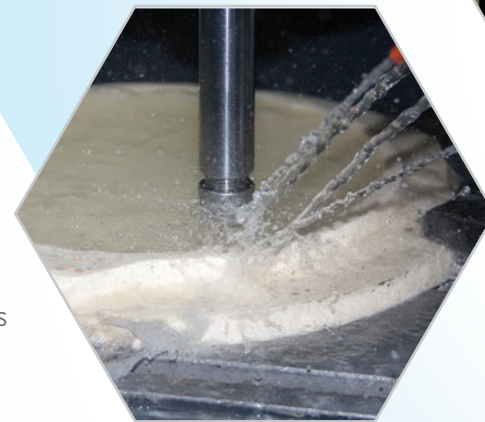
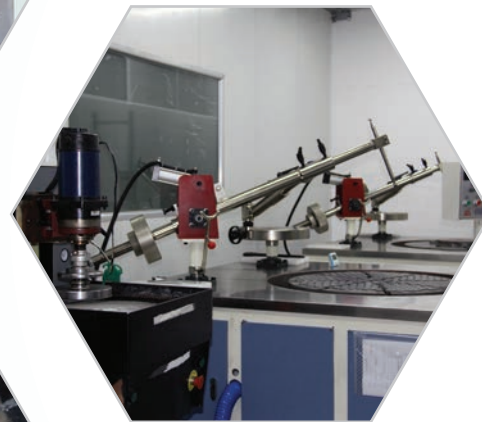
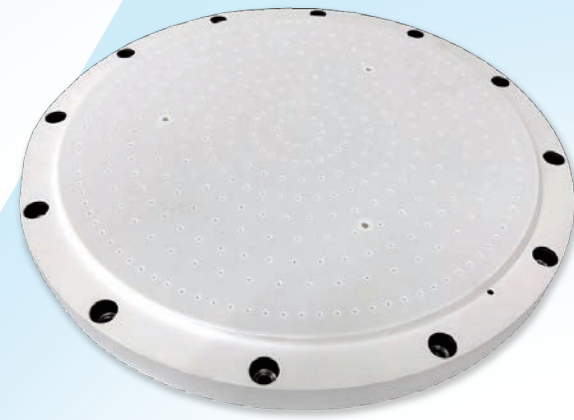
Using our advanced plasma sprays and surface-coating technologies, we restore critical chamber components to original specifications and performance parameters.

Features

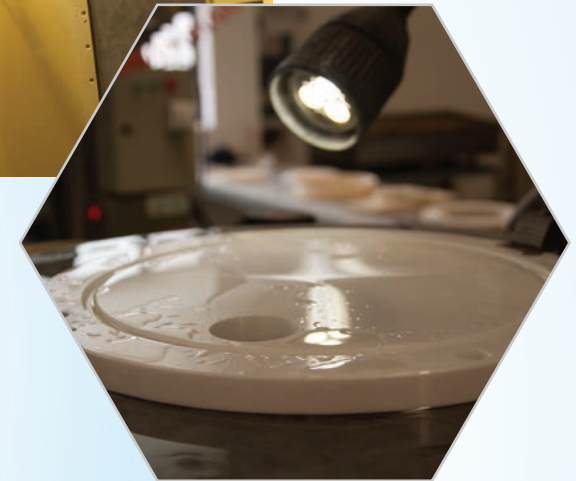
- High-purity advanced ceramic components
- Leading-edge plasma spray coating technologies
- Superior resistance to aggressive plasmas
- Thermally stable
- Superior surface finishes
- Tightly toleranced AlN wafers/substrates.

Capabilities

- Mature AlN manufacturing process
- Proprietary masking techniques
- Advanced plasma-spray technologies
- Precision machining
- Proprietary non-contaminating machining techniques
- High-tolerance, precision fine-hole machining



SURFACE TREATMENT



Services

- Chemical stripping and cleaning for large-format components
- Fully-automated bead blasting
- Plasma spray coatings available in large formats >3,000 mm sq
 - Materials:
 - Alumina — Al_2O_3
 - Yttrium oxide — Y_2O_3
 - Yttrium fluoride — YF_3
 - Yttrium oxyfluoride — YOF
 - Fully automated 6-axis robots
 - Leading-edge torch heads
 - Coating substrates include:
 - Anodized
 - Aluminum
 - Ceramics
 - Quartz
- Twin Wire Arc Spray (TWAS)
- Anodization — up to 4,000 x 4,200 mm
 - Hard and soft
 - Hot DI seal
- Lapping and polishing up to 700 mm O.D.
- Analysis — complete coating characterization

Precision Surface Finishing

Coatings on Al_2O_3



REFURBISHMENT SERVICES

CLEANING LINE



Visual Inspection



Chemical Stripping & Cleaning



Eliminate Risk of Cross-Contamination



Component cleaning and component refurbishing are separated to eliminate cross-contamination

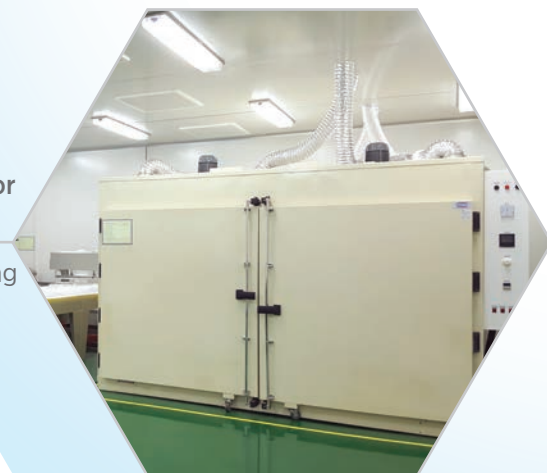
Legend

-  Technical Ceramics
-  Flat-Panel Display
-  E-Chucks & Heaters
-  Surface Treatment
-  Refurbishment Services

Vacuum & Baking Ovens for Effective Drying



Efficient, non-contaminating drying process



Before

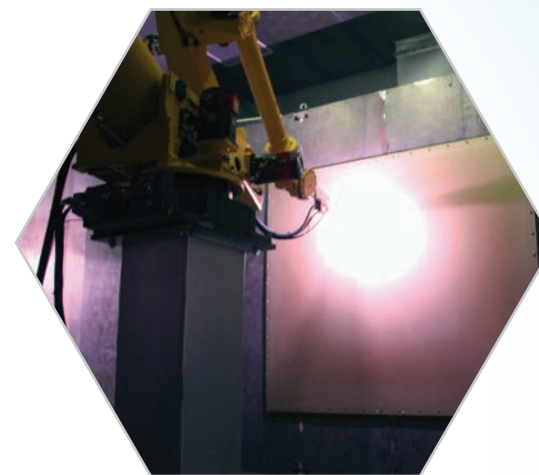


After

Bead Blasting



- Surface prep prior to plasma spray
- Mechanical strip



Advanced Coatings

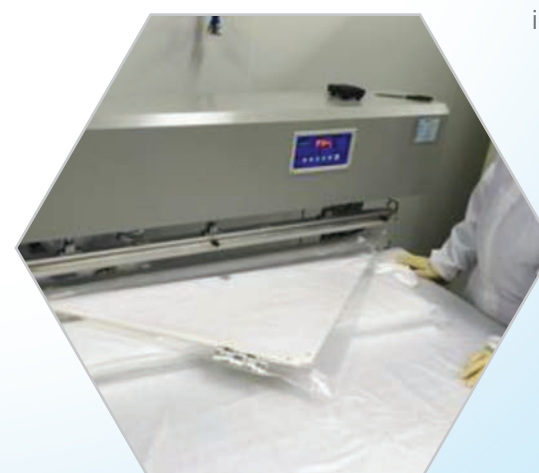


- Plasma spray
- Alumina — Al_2O_3
- Yttrium oxide — Y_2O_3
- Yttrium fluoride — YF_3
- Yttrium oxyfluoride — YOF
- Twin Wire Arc Spray (TWAS)

Surface Finishing



Precision lapping and grinding machines are used to achieve the ideal surface finish

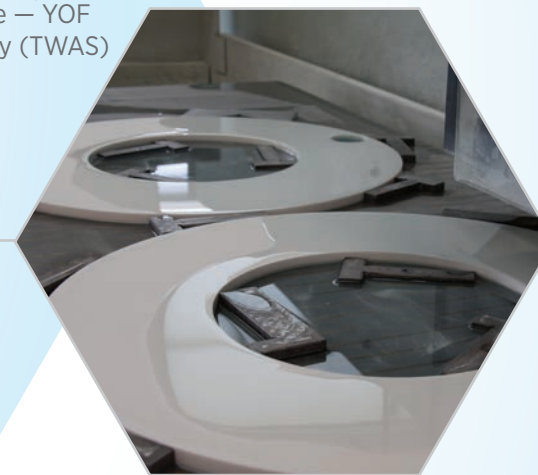


Cleanroom Packaging



After final clean and inspection are complete, all components are packaged in cleanroom and prepared for shipment

RESURFACING



Technical Ceramics

Flat-Panel Display

Heater Components

Surface Treatment

Refurbishment

MARKETS SERVED

Semiconductor, Display, and Electronics



- Susceptors
- Domes
- Heater components
- Chamber components
- Substrates
- Refurbishment
- Large ceramic components



Industrial Machinery



- Wear components
- Gears
- Seals
- Rings
- Cutting tools
- Grinding & milling
- Pump components
- Custom components
- Material classification
- Textiles



Renewable Energies



- Bearings
- Wear components
- Custom components
- Electrical insulators
- Battery manufacturing
- Structural components



Oil, Gas, & Petrochemical



- Seals
- Valves
- Custom components
- Severe-duty pump components



Automotive



- Sensor components
- Engine components
- Injectors
- Seals
- Cooling boxes for electric vehicles



Precision Measurement



- Rings
- Beams
- Tables
- Metering pumps



Medical, Dental & Pharmaceutical



- Pumps
- Seals
- Surgical tool components
- Diagnostic equipment components
- Classification equipment components
- Orthopaedic components



Aerospace & Aviation



- Blades
- Bearings
- Wear components
- Insulators
- Custom components



Legend

- Technical Ceramics
- Flat-Panel Display
- Heater Components
- Surface Treatment
- Refurbishment Services

Technical Ceramics

Flat-Panel Display

Heater Components

Surface Treatment

Refurbishment

CERAMIC MATERIAL PROPERTIES

Scan this Code for a PDF of this information.



OXIDES

NON-OXIDES

Properties	Temp.	Units	Test	Aluminas Al ₂ O ₃				ZrO ₂		ZTA	TiO ₂	AlN			Si ₃ N ₄	SiC			
				KMT-97	KMT-998	K1	KMT-999	KMT-ZrO ₂ (YTZP)	KMT-ZrO ₂ (YTZP-MS)	KMT-ZTA85	KMT-TiO	KMT-AlN (A1)	KMT-AlN180 (T)	KMT-AlN (PI)	KMT-SiN	KMT-SSiC	KMT-SSiC (P)	KMT-SiSiC	
Material Name																			
Primary Material Content		weight %	GDMS	>96% Al ₂ O ₃	>99.8% Al ₂ O ₃	>99.8% Al ₂ O ₃	>99.9% Al ₂ O ₃	>95% ZrO ₂	>95% ZrO ₂	>85% Al ₂ O ₃	>99.9 TiO ₂	>96% AlN	>96% AlN	>99.5% AlN	>90% SiN	>99.9% SiC	>99.96% SiC	—	
Characteristics				Metallizable, wear resistance.	Excellent wear and heat resistance. Good electrical insulation and dielectric strength, low dielectric loss. High corrosion and plasma resistance.			Excellent mechanical strength and fracture toughness. Good wear and heat resistance.	Best mechanical strength and toughness. Good wear and corrosion resistance. Good resistance to thermal shock.	Enhanced fracture toughness, good mechanical strength, wear and corrosion resistance.	High purity, good electrostatic dissipation.	Optimal thermal conductivity. Excellent thermal shock and plasma resistance. High electrical resistivity. Good thermal and electrical stability.			Lightweight, high wear resistance, and high heat resistance.	High thermal strength, good thermal conductivity, high chemical resistance.	Higher purity, thermal conductivity, and volume resistivity. High corrosion resistance.	Excellent corrosion and abrasion resistance.	
Applications				Electrical insulators, metallized ceramic parts	Semiconductor, FPD equipment components, wear and corrosion components. Telecommunications, laser, fluid handling, and powder processing.			Bearings, medical components, wear and heat-resistant components, valves, wire manufacturing, tooling, oil & gas, oxygen sensors		Wear and heat resistant components where mechanical strength is needed at high operating temperatures	Electrostatic dissipative material.	Semiconductor manufacturing equipment, heat dissipating components, plasma resistant components, electrical insulators, substrates			Heat, wear, and corrosion resistant components, bearings, seals, focus rings, valves.	Semiconductor equipment components.	Semiconductor equipment, sealing, and anti-heat components.	Abrasive and corrosion resistant components, automotive.	
Bulk Density		g/cc	ASTM-C20	3.70	3.92	3.92	3.95	6.02	6.06	4.16	4.20	3.30	3.30	3.26	3.262	3.14	3.15	3.02	
Water Absorption		%	ASTM-C373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mechanical	Vickers Hardness (Load 500g)	GPa	ASTM-C1327	>16	>17	>16	>19	>12	>12	>17	>8	>10	>9	>10	>15	>25	>26	>20	
	Flexural Strength	MPa	ASTM-C1161	350	370	380	400	760	1286	434	150	468	405	384	—	360	400	250	
	Compressive Strength	MPa	ASTM-C773	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Young's Modulus of Elasticity	GPa	ASTM-C848	330	386	390	390	330	—	315	—	—	327	—	314	400 (ASTM-C1198)	400 (ASTM-C1198)	330 (ASTM-C1198)	
	Poisson's Ratio	—	ASTM-C848	0.23	0.23	0.24	0.25	—	—	0.25	—	—	0.23	—	0.28	—	—	—	
	Fracture Toughness	MPa • m ^{1/2}	ASTM-C1421	3.0	4.0—5.0	4.0—5.0	4.0—5.0	11.5	11.8	6.2	2.7	4.0	4.2	3.5	6.9	—	—	—	
Thermal	Coefficient of Linear Thermal Expansion	25 - 400°C	ASTM-C372	7.10	7.10	7.36	7.48	10.81	—	—	—	4.68	4.82	4.51	—	—	—	—	
		25 - 800°C	ASTM-C372	—	—	8.15	8.22	—	—	—	—	5.34	5.58	5.25	3.30	—	—	—	
	Thermal Conductivity	25°C	W/(m • K)	ASTM-E1461	25	34	32	31	3	—	21	6	178	181	84	34	140 (ASTM-C408)	170 (ASTM-C408)	45 (ASTM-C408)
	Specific Heat		J/(Kg•K) x10 ³	ASTM-E1269	0.78	0.82	0.79	0.76	0.35	—	0.69	0.66	0.76	0.72	0.65	0.66	—	—	—
	Thermal Shock Resistance		°C	Note 1	200	220	220	220	—	350	—	—	—	—	—	550	—	—	—
Electrical	Volume Resistivity	25°C	Ω • cm	ASTM-D257	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	>10 ¹²	—	> 10 ¹⁴	1.5	≥10 ¹⁴	≥10 ¹³	≥10 ¹¹	≥ 10 ¹⁴	10 ⁶ — 10 ⁸	≥10 ⁸	—
	Dielectric Strength		KV/mm	ASTM-D149	16	16	16	16	14	—	—	—	17.56	16.80	21.79	34	—	—	—
	Dielectric Constant		—	ASTM-D150	9.0	8.0	10.7	10.4	29	—	—	—	8.7	8.8	8.9	—	—	—	—
	Dielectric Loss		13.56 MHz	ASTM-D150	—	3x10 ⁻³	2.8x10 ⁻³	≤5.0x10 ⁻⁴	2.9x10 ⁻³	—	—	—	5x10 ⁻⁴	4x10 ⁻⁴	1.7x10 ⁻⁴	—	—	—	—

NOTE: This chart illustrates typical properties. Data may vary with size of part, shape of part, and the manufacturing method employed. Data contained herein is not to be construed as absolute and does not constitute a representation or warranty for which KemaTek assumes legal responsibility.

HISTORY & LOCATIONS

- 2009** — Established Entity
 - Technology development
 - Factory construction, equipment installation, product development
 - Testing of production line
 - First product shipped 2011
- 2012** — Mass production of high-purity alumina components for IC, LCD, LED, and new energy industries
- 2013** — R&D and production for Zirconia, ZTA, and AlN materials
- 2014** — Market expansion to Mainland China, Taiwan, Korea, and Japan
- 2015** — Expansion into Europe and Japan
 - Full operations of cleaning line
 - Introduce AlN material to market

- 2016** — Established ceramic injection molding operations
 - R&D for refurbishing and manufacturing of ESC components for LCD and IC industries
 - Launch of plasma thermal spray coating operations
- 2017** — Suzhou II manufacturing facility completed including advanced plasma spray, ESC, and electrodes for IC & display markets
- 2018** — Sichuan facility completed to expand capacity for large-format parts
- 2019** — Suzhou III manufacturing facility opened to expand capacity
- 2021** — Suzhou IV manufacturing facility opened. Aluminum nitride capacity expanded.
- 2022** — Anhui facility completed to expand capacity for silicon carbide parts.
- 2023** — Consolidating the Suzhou operations into a single, ultra-modern 845,000 ft² campus.

Global HQ Suzhou



Suzhou Facility I



Suzhou Facility II



Suzhou Facility III



Suzhou Facility IV



USA Branch Office



Sichuan Facility



Sichuan Facility II



Anhui Facility

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