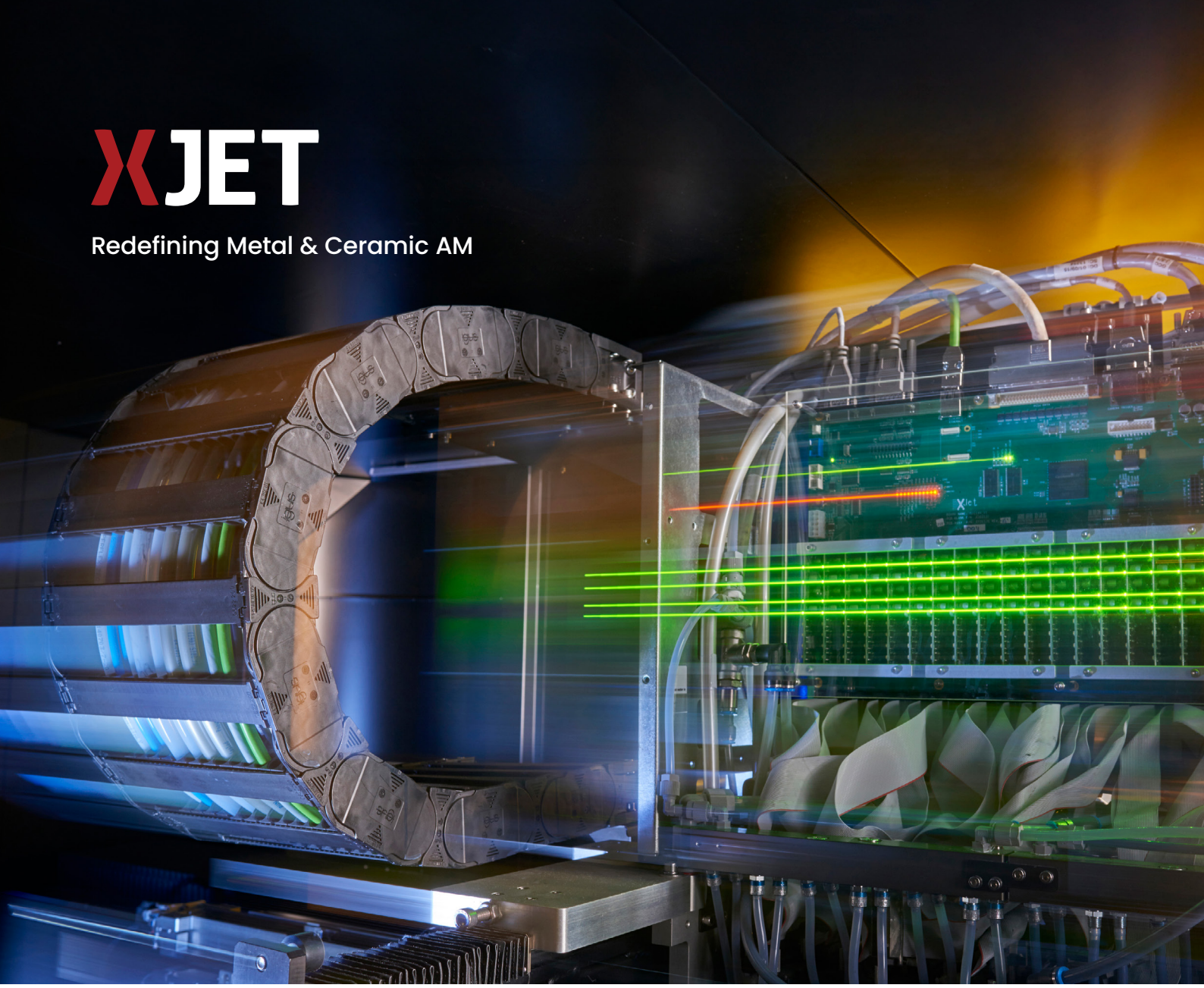
XJET

Redefining Metal & Ceramic AM



MATERIAL PORTFOLIO

XJet Inkjet Material Offering

Metal Alloys | Precious Metals | Ceramics

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NPJ Technology and Inkjet Offering

XJet's material development is not just about science. It's setting new boundary of imagination. We're redefining what's possible in metal and ceramic.

Our breakthrough NanoParticle JettingTM technology changes everything about additive manufacturing. We suspend sub-micron particles in liquid—no powders, no mess.

Every material is crafted in-house and delivered in sealed cartridges, safe to handle, easy to load, and efficient in consumption for maximum material efficiency. We ensure consistent quality and exceptional material properties for easy operational management.

We're just getting started. More materials are coming—each one tailored for specific industries and breakthrough applications. Because when you push the boundaries of materials, you unlock real-world innovation.

XJet is certified for ISO 9001 and ISO 13485.

M600 | 316L Stainless Steel

XJet's M600 is the build material for printing of 316L stainless steel, a highly versatile and widely used austenitic alloy known for its excellent corrosion resistance, mechanical durability, and biocompatibility. It is commonly used in medical, aerospace, and industrial applications where strength and chemical stability are essential.

Combines the benefits of metal 3D printing with the strength and familiarity of a proven industrial alloy, our M600 material features high density and high-quality, enabling our inkjet-based additive process for dimensional precision, tight tolerances, and a smooth surface finish, effective for functional prototypes, end-use components, and miniature assemblies where reliability and corrosion resistance are critical.

Key Properties

Density	97.5% - 7.8g/cm^3
Tensile Strength, Ultimate	594 MPa
Tensile Strength, Yield	265 MPa
Modulus of Elasticity	175 GPa
Hardness HRB	86
Shrinkage per Dimension	15.5±1%
Coefficient of Thermal Ex	14.6 @ 25°C
	19.8 @ 500°C

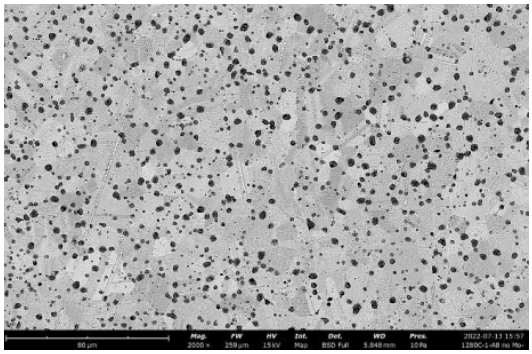
Others

Surface Roughness: Ra < 6.3 [µm] (N9)
Pass Corrosion Tests according to ASTM F1089

Applications

Medical tools, aeroscape components, miniaturized parts

Microstructure as Sintered



M700 | 17-4 PH Stainless Steel

M700 is based on 17-4 PH (Precipitation Hardening) stainless steel, a premium-grade alloy that offers a high strength-to-toughness ratio, excellent mechanical stability, and the ability to be heat-treated for tailored performance. It is widely used for structural components, precision tools, and functional prototypes in applications where strength, hardness, and corrosion resistance must coexist — such as aerospace, defense, and medical devices.

XJet M700 enables the production of highly detailed 17-4 PH parts with over 97% density, complex geometries, and fine features through its inkjet-based AM process.

The combination of strong mechanical properties, high strength-to-weight ratio, controlled shrinkage, and reliable repeatability makes it a robust solution for both industrial production and design-intensive engineering environments.

Key Properties

Density	97% - 7.57g/cm^3
Tensile Strength, Ultimate	990 MPa
Tensile Strength, Yield	775 MPa
Elongation (%)	6%
Modulus of Elasticity	196 GPa
Hardness HRC	30-36
Shrinkage per Dimension	13±1%

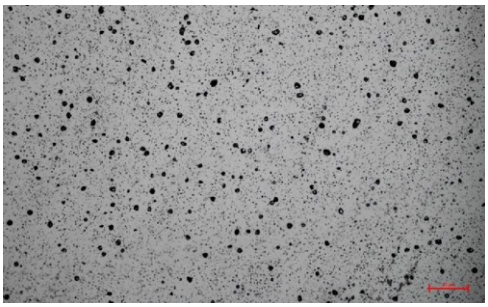
Others

Surface Roughness: (µm Ra) :N6-N9
Pass Corrosion Tests according to ASTM F1089

Applications

Structural components, surgical tools, dental parts, mechanical fixtures

Microstructure as Sintered



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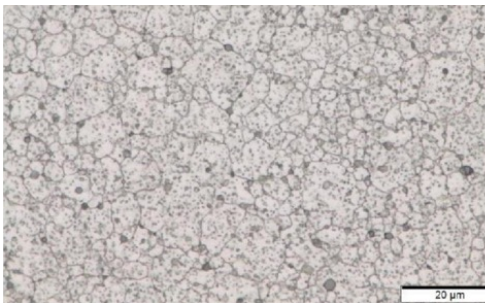

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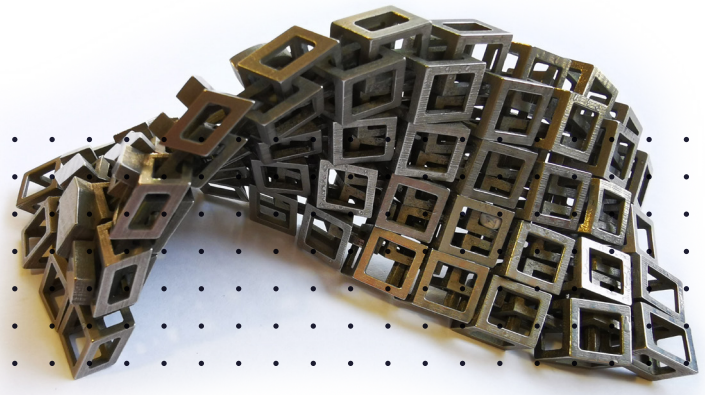
Tungsten Carbide

Tungsten Carbide particles bonded with cobalt comes as an ultra-hard composite material that delivers exceptional wear resistance, compressive strength, and thermal conductivity while maintaining superior hardness retention at elevated temperatures and excellent dimensional stability. It is widely used for cutting tools, wear parts, and precision components in applications where extreme hardness, abrasion resistance, and thermal management must unite — such as machining operations, mining equipment, and high-performance industrial tooling.



M925 | Sterling Silver

M925 Sterling Silver is based on 92.5% pure silver alloyed with copper, a time-tested precious metal composition that delivers exceptional electrical conductivity, thermal performance, and natural antimicrobial properties alongside superior workability and surface finish quality. It is widely utilized for precision electronics, luxury components, and high-performance prototypes in applications where conductivity, aesthetics, and biocompatibility must converge.

XJet M925 material, dedicated for premium products such as fine jewelry and watch components, achieves great density and additional properties, on top of its resolution and accuracy, making it an ideal solution for both high-tech manufacturing and design-critical luxury applications.

Metal // Precious Metals

14K | 18K | 24K Gold Alloys

Gold alloys are typically used in luxury jewelry and consumer components, electrical contacts and medical devices, for its aesthetic value, maximum conductivity, absolute corrosion resistance, and pristine material purity.

XJet offers the first-ever ink-format gold alloy materials dedicated for additive manufacturing. It follows ultimate precious metal standard that serves across industries for premium quality, maximum density and surface quality, absolute chemical stability and mechanical properties.

C700 | High-Purity Alumina

C700 is based on one of the most widely used technical ceramics — aluminium oxide (Al_2O_3) — known for its exceptional combination of mechanical strength, thermal stability, and chemical resistance. Alumina parts are electrically insulating and offer excellent dielectric performance, making them ideal for precision components in demanding environments.

XJet C700 is a high-purity alumina material (99.99%) designed for additive manufacturing of intricate, small-scale ceramic parts. Its outstanding material density, low shrinkage deviation, and high hardness make it suitable for applications requiring tight tolerances, abrasion resistance, and clean dielectric behavior.

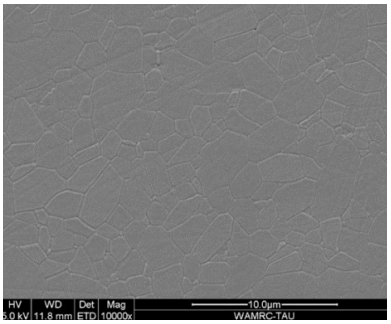
With C700, it is possible to produce fine channels, high-aspect-ratio features, and sharp internal details, all while maintaining excellent thermal conductivity and mechanical durability. This makes it particularly well-suited for advanced electronics, analytical instruments, medical devices, and industrial insulators.

Key Properties	
Density	> 99.5% > 3.93 g/cm3
Purity	99.99%
Hardness	> 1600 HV
Shrinkage	Linear 14.5±1% per axis (isotropic)
Young's Modulus of Elasticity	387 GPa
Fracture Toughness	3.4 MPa·m½
Poisson's Ratio	0.23
Thermal Properties	
Thermal conductivity	32 J/(sec x m x k) @30°C
Coefficient of linear thermal expansion	7.1 (40-400°C) ppm/°C E-6 8.0 (40-800°C) ppm/°C E-6
Specific Heat Capacity	0.78 J/(kg·k)
Coefficient of linear thermal expansion	150°C
Electrical properties	
Value Resistivity	20°C - 1.0E+15 Ω·cm 300°C - 2.5E+13 Ω·cm 500°C - 5.8E+10 Ω·cm
Dielectric Strenght	17 kV/mm
Dielectric Constant (1 MHz)	9.9
Dissipation Factor	< 0.0001 (1 MHz)
Others	
Surface Roughness: Ra < 6.3 [µm] (N9)	
Pass Corrosion Tests according to ASTM F1089	

Applications

Electronic insulators, high-temprature parts, wear-resistant components

Microstructure as Sintered



C808 | High-Strength Zirconia

C808 is a high-performance ceramic based on yttria-stabilized zirconium oxide (ZrO_2) — a material known for its outstanding fracture toughness, wear resistance, and mechanical strength. Unlike many ceramics, zirconia offers both durability and resilience, making it ideal for high-load and impact-prone applications.

XJet C808 delivers over 99.5% density and excellent dimensional accuracy, allowing the production of complex geometries and miniature, high-strength components with minimal post-processing. Its exceptional mechanical integrity, even at small scale, enables the fabrication of thin walls, interlocking features, and functional parts where both precision and toughness are essential.

In addition to its mechanical advantages, C808 offers strong corrosion resistance and stable thermal and electrical behavior, making it well-suited for medical, dental, aerospace, and precision tooling applications where reliability and material performance are non-negotiable.

Key Properties	
Density	> 99.5% > 6.02 g/cm3
Purity	> 99.5%
Hardness	> 1260 HV
Shrinkage	Linear 17.8±1% per axis (isotropic)
Young's Modulus of Elasticity	215 GPa
Fracture Toughness	3.4 MPa·m½
Poisson's Ratio	0.31

Thermal Properties	
Thermal conductivity	32 W/(m·k)
Coefficient of linear thermal expansion	10 (40-400°C) ppm/°C E-6 11 (40-800°C) ppm/°C E-6
Specific Heat Capacity	0.46 J/(kg·k)
Thermal Shock Resistance (Temprature Difference)	150°C

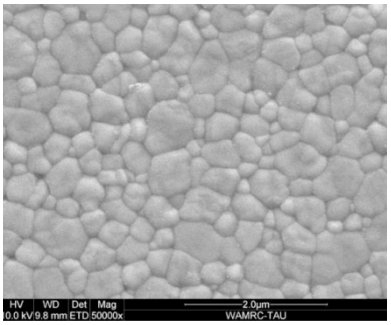
Electrical properties	
Value Resistivity	20°C - 1.5E+12 Ω·cm 300°C - 8.3E+06 Ω·cm 500°C - 8.8E+06 Ω·cm
Dielectric Strenght	11 kV/mm
Dielectric Constant (1 MHz)	34
Dissipation Factor	< 0.0096 (1 MHz)

Others
Surface Roughness: Ra < 6.3 [µm] (N9)
Pass Corrosion Tests according to ASTM F1089

Applications

Electronic insulators, high-temprature parts, wear-resistant components

Microstructure as Sintered

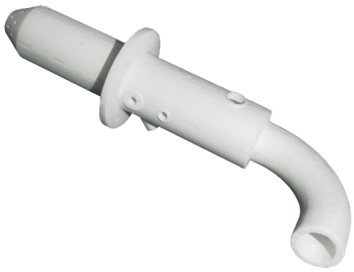


Black Zirconia

Zirconia Toughened Alumina is based on alumina matrix reinforced with zirconia particles, an advanced composite ceramic that delivers exceptional fracture toughness, thermal shock resistance, and wear performance while maintaining excellent electrical insulation properties and chemical stability. It is widely used for cutting tools, wear components, and high-temperature components in applications where enhanced toughness, thermal cycling resistance, and mechanical reliability must coexist — such as medical implants, industrial machinery, semiconductor processing equipment, and advanced manufacturing tooling.

XJet Zirconia toughened Alumina combined the excellent performance of XJet Zirconia and Alumina materials, enables the production of complex zirconia toughened alumina parts with high density, fracture resistance and excellent thermal properties, makes it a versatile option for both demanding industrial applications and precision engineering environments.

Zirconia Toughened Alumina



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Aluminum Nitride

Aluminum Nitride is an advanced technical ceramic material that delivers exceptional thermal conductivity, electrical insulation properties, and low thermal expansion alongside superior chemical stability and high-temperature performance. It is widely used for heat sinks, electronic substrates, and thermal management components in applications where efficient heat dissipation, electrical isolation, and thermal cycling resistance must coexist — such as power electronics, LED modules, and high-frequency RF devices.

Silicon Carbide

Silicon Carbide is an extremely hard ceramic compound formed from silicon and carbon atoms in a crystal lattice structure, offering exceptional thermal conductivity, chemical inertness, and high-temperature stability up to 1600°C. Its unique combination of properties makes it essential for power electronics, aerospace turbine and heat shields and industrial equipment (pump seals, bearings, and heat exchangers). The material's ability to operate efficiently at high temperatures and voltages while maintaining structural integrity has made it particularly valuable in the transition to electric vehicles and renewable energy systems, where traditional materials cannot withstand the demanding thermal and electrical conditions.

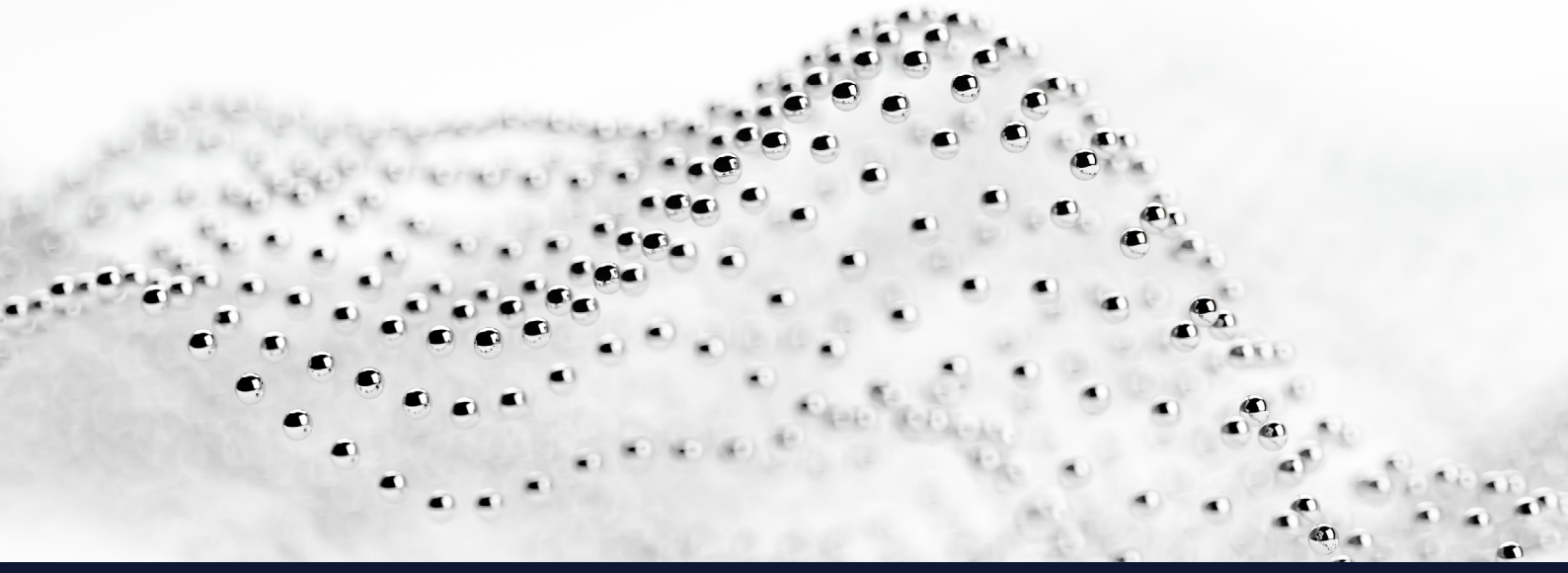
Boron Carbide

Boron carbide (B4C) is one of the hardest known materials after diamond and cubic boron nitride, characterized by its exceptional hardness, low density, and high neutron absorption capability, making it lighter than most ceramics while maintaining superior wear and ballistic resistance. Its unique properties make it indispensable for ballistic armor applications, nuclear industry components, abrasive applications, and cutting tools for extremely hard materials. The material's combination of extreme hardness with relatively low weight has established it as the premium choice for personal protection systems and specialized industrial applications where conventional materials cannot provide adequate performance under extreme conditions.

Partner with us for your advanced material solutions

We are committed to pushing the boundaries of advanced manufacturing through continuous innovation and collaborative development. Whether you require custom material formulations, application-specific property optimization, or entirely new material systems for your unique challenges, our experts work closely with industry partners to develop tailored solutions that meet the most demanding specifications.

Contact our materials team today to discuss your specific requirements. We are ready to work with you on the next big thing!



4 Oppenheimer St., Science Park, Rehovot 7670104, Israel T: +972 73 269 4620

xjet3d.com

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