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IRON CORE i5

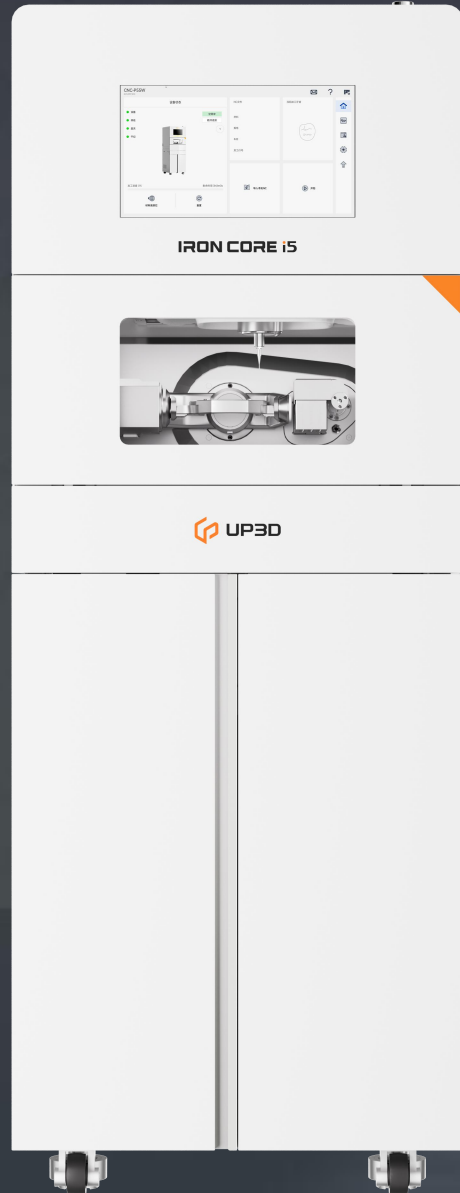
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Shenzhen UP3D Tech Co, LTD

01 Introducing IRON CORE i5



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IRON CORE i5

UP3D's First Metal Milling Machine

IRON CORE i5 is UP3D's first **5-axis metal milling machine**, engineered specifically for **high-precision dental restorations**.

Whether you're handling high-strength titanium or delicate aesthetic zones, IRON CORE i5 ensures **efficiency, precision, and long-term reliability**—making it a powerful asset for modern dental labs.

- Tailored for complex metal restorations
- Optimized for long-hour, high-load milling
- Easy to operate, built to last

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Why Metal Milling Matters?



Meeting the Rising Demand for Precision Metal Restorations

The demand for high-strength, biocompatible, and long-lasting restorations is growing—especially in implant dentistry and large-span prosthetics. This has made metal milling a critical capability for advanced dental labs worldwide.

- Titanium remain essential in implant-supported restorations due to their durability and biocompatibility.
- High-precision frameworks and abutments require superior accuracy and stability in the milling process.
- Labs face increasing production complexity, with multi-material workflows, fast turnaround expectations, and minimal tolerance for errors.





Why **IRON CORE i5**?

IRON CORE i5 is designed specifically to meet these challenges.

It empowers labs to:

- Confidently mill **titanium discs, bars, and pre-milled blanks**
- Produce **highly accurate, aesthetic restorations**
- Run **long-hour, unattended** metal workflows with **smart monitoring** and **stable** motion control

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Feature Highlights



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Uncompromised Power for Demanding Metal Milling

1.8kW (max) water-cooled spindle with exceptional torque and speed stability, ensuring smooth, reliable milling of high-hardness materials like titanium, even during long hours of heavy-duty use.

→ Ideal for high-precision metal restorations, including titanium implants and bridges.



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Smart Servo Control, Made Simple

Advanced **servo system** and **multi-axis control algorithms** for precise, real-time path correction.

→ **Easy to operate** with an intuitive **15" touchscreen**, reducing setup time and training requirements for users of all skill levels.

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Ultra-Stable Drive System for Micron-Level Accuracy

C3-grade ball screws and P-grade linear guides ensure sub-micron repeatability with low vibration and noise.

→ Perfect for intricate, high-precision work like dental implants and fine metal restorations.

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Integrated Water Cooling for Stable, Long-Hour Milling

Built-in **water cooling system** for consistent spindle temperature control,
minimizing thermal drift and enhancing tool longevity.

→ Ensures **stable performance** even in **long-hour, high-load milling**.

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Open C-Clamp Design for 90° Aesthetic Milling

The **open C-type clamp** enables **full 90° vertical milling**, providing **easy access** to complex undercuts and aesthetic zones.

→ **Ideal for buccal and labial surface detailing** without the need for excessive manual adjustments.

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Flexible Fixture System for Multi-Material Compatibility

Supports fast switching between **discs, blocks, and pre-milled blanks**,
compatible with materials like **titanium, PMMA, PEEK, and wax**.

→ Perfect for **multi-material workflows** and **high-frequency production**.

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Smart Monitoring for Worry-Free Production

Integrated **HD camera** and **coolant flow sensors**, with **MillMind remote monitoring** for **real-time tracking** and **predictive maintenance alerts**.

→ **Enhanced operational safety** and **efficiency**, reducing downtime and ensuring continuous high-performance milling.

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UPCAM

Smart Nesting Software



Fully Integrated CAM for Smarter Metal Milling

1. In-House Development & Full Compatibility

Developed by UP3D for IRON CORE i5

Seamless integration with hardware ensures optimal performance, stability, and ongoing compatibility

2. Always Updated with Latest Strategies

No delay, no third-party reliance

UPCAM updates regularly with the latest metal milling strategies—improving results without waiting on external vendors.

3. Fast Toolpath Calculation

Save time in every job

High-speed CAM computation shortens preparation time, boosting overall productivity.

4. Smart Nesting & Simulation

Simulate before you mill

Preview results, optimize layouts, and reduce trial-and-error to protect your material and time.

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Application Scenarios



Indications Supported

IRON CORE i5 covers a wide range of high-value indications, including:

- Crowns (anatomical, screw-retained, telescopic)
- Bars and custom abutments
- RPD frameworks (Removable Partial Dentures)
- Inlays, onlays, and veneers
- Bite splints and full dentures

→ From simple crowns to complex implant restorations—all in one machine.



Compatible Materials

Engineered for efficient milling of:

- Titanium (discs and Ti blanks)
- PMMA, PEEK, composite resin, glass ceramics, wax



→ One platform for both metal and non-metal workflows.

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Competitive Product Analysis



IRON CORE i5 vs 5X-450

Brand - Model	 <p>UP3D IRON CORE i5</p>	 <p>Arum 5X-450</p>
Dimensions	660 × 660 × 1680 mm	791 × 791 × 1637 mm
Weight	420 kg	250 kg
Rotational Axes	A-axis: 360° B-axis: ±30°	A-axis: 360° B-axis: ±35.1°
Drive System	Servo motor system	Stepper motor system
Dust Protection	Silicone dust shield	Bellows cover and baffle plate
Camera	Integrated HD camera (supported)	Not supported
Control Interface	Built-in touchscreen+CNC control software	External CNC control system
Spindle Cooling	Water-cooled	Water-cooled
Spindle Speed	60,000 RPM	60,000 RPM
Spindle Power	1.8 kW (max)	1.28 kW
Tool Slots	18-position	15-position
CAM Software Support	UPCAM	MillBox, hyperDENT, WorkNC

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THANKS FOR WATCHING



Full Dental CAD/CAM Solution

2025 Shenzhen, China