



Immersion Cooling Products & Solutions

Now you have a friend in mining business.

JUN 2022

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FOG HASHING

About Fog Hashing

Fog Hashing Pte. Ltd. is a professional crypto mining technology provider from Singapore.

Based on its advanced immersion cooling technology and software system, the ultimate efficiency of high-density thermal management and overclocked hashrate is achieved, which will increase the ROI of crypto mining dramatically.

Liquid Immersion Cooling: Technical Advantages

- **Precise temperature control:** provide a controllable environment for chips, eliminate "electron migration phenomenon" caused by high heat.
- **Stable operation:** reduce fault rate, increase online rate close to 100%.
- **Longer lifecycle:** the mining machines are isolated from air, without dust, static electricity, short circuit, oxidation, fan vibration, so that the lifecycle of mining machines can be extended to more than 5 years.
- **Low noise:** eliminate the noise problem of air cooling, and can be deployed in residential and commercial areas.
- **Overclocked hashrate:** up to 60% of hashrate overclocking will shorten the return cycle and improve ROI.
- **Reduced operation and maintenance costs:** stable running combined with FH remote management system reduces maintenance cost by 90%.
- **Lower cooling cost:** lower cooling energy consumption ($PUE < 1.05$), lower carbon emission with FH intelligent power management.

(Note: The above is tested using Fog Hashing products)



C1/C2 - Immersion Cooling Kit for Home Mining



Designed for ASIC home mining

- C1/C2 is the all-in-one immersion cooling kit designed for individual ASIC miner, either home or office use.
- C1 is for one mining machine and C2 for two.
- **C1 Ultra Edition:** for higher ambient temperature or for more overclocking.

Efficient cooling and stable running

- Cooling efficiency is much higher than air cooling.
- Low damage rate due to precise temperature control.
- Stable and long-term running with little maintenance.
- Extending lifecycle of mining machines without static, dust, short circuit, oxidation, fan vibration in the non-corrosive dielectric coolant.

Quiet and smart monitoring

- The tank has little noise, and the external cooler works outdoor with less noise.
- IoT sensors help to monitor the running status.

Overclocking benefits and energy saving

- Mainstream miners can be overclocked by 20-50%.
- Better power efficiency compared to air cooling.

Compatibility

- Compatible with most ASIC miner models, including BTC, ETH, LTC, KDA, CKB, HNS miners and more.
- For Compatibility List, please check out our website.



C1 Tank	
Outer size	410(L)*400(W)*475(H) mm
Inner size	320(L)*210(W)*370(H) mm
Weight	20kg
Input voltage	Single-phase 200-240V 50/60Hz
Display	1.32" OLED Screen
Coolant volume	26-30L
Power	100W
Dry cooler	
Size	570(L)*310(W)*530(H) mm 751(L)*274(W)*630(H) mm (Ultra)
Power	180W / 250W (Ultra)
Input voltage	Single-phase 200-240V 50/60Hz
Weight	16kg / 28kg (Ultra)
Max Capacity	
C1	4300W@30°C
C1 Ultra	4300W@40°C

G1 - Immersion Cooling Kit for GPU Miner



Designed for GPU rigs

- G1 is the all-in-one immersion cooling kit designed especially for multi-GPU mining rigs.
- Suitable for both individual users and business users.

Efficient cooling and stable running

- Cooling efficiency is much higher than air cooling.
- Low damage rate due to controllable temperature.
- Much safer for overclocking.

Extending lifecycle of GPUs

- No static, no dust, no short circuit in the non-corrosive dielectric coolant.

Quiet and energy saving

- The tank has little noise, and the external cooler works outdoor with less noise.
- Saves power used by original fans.

Compatibility and Scalability

- Compatible with most 8-GPU (or less) mining platforms.
- Modularized design, can be used in large-scale mining farms with integrated external cooling facilities.



G1 Tank	
Outer size	1000(L)*245(W)*515(H) mm
Inner size	755(L)*215(W)*450(H) mm
Weight	22kg
Input voltage	Single-phase 200-240V 50/60Hz
Operating temp	0°C - 40°C
Display	1.32" OLED Screen
Coolant volume	55L
Power	100W
Dry cooler	
Size	570(L)*310(W)*530(H) mm
Power	180W
Input voltage	Single-phase 200-240V 50/60Hz
Cooling Capacity	2000W@35°C
Weight	15kg
Pipe diameter	DN20
Noise	60dB(A)
Pipeline	3m *2



B6 - Immersion Cooling Tank for ASIC Miner

*For professional miners and mining farms, we provide customized solutions to satisfy your requirement.



Designed for scalability

- One B6 tank is a modular design unit that can hold 6 miners inside, and can be deployed in either distributed or centralized way.

B6 - scalable deployment

- Plate heat exchanger, sensors, power distribution, network switch and other facilities are all integrated inside the B6 tank.
- Internal circulation uses oil, external circulation uses water.
- Support remote monitoring and control by our SaaS platform. IoT sensors has built-in logic to control automatically, to save power of cooling and maintenance cost.
- Support "Demand Response" program by fast and safe batch operation.

B6R - Rack for B6

- One B6R can hold three B6s.
- Multiple units can be put side by side, to scale out.
- Integrates water pipes inside the rack itself.
- Equipped with an additional maintenance side rack.



B6 Tank	
Outer size	1420(L)*620(W)*575(H) mm
Net weight	110kg
Total weight	230kg (with coolant and miners)
Input voltage	3-phase 350-480V 50/60Hz
Output voltage	Single-phase 200-277V 50/60Hz
Cooling capacity	30kW@30°C
Operating temp	-10°C - 40°C
Display	1.32" OLED Screen
Coolant volume	160L
Power	400W
Capacity	6 ASIC miners
Network	100Mbps Ethernet switch
External cooling	Dry cooler/water cooling tower
Pipe diameter	DN25
Inlet and outflow temperature	45/65°C
B6R Rack	
Outer size	1519(L)*614(W)*2060(H) mm
Capacity	B6 x 3

B6D - Independent deployment of B6



Designed for independent deployment

- One B6D with one dry cooler, suitable for fast & easy deployment.
- All-in-one design with built-in PDU, network switches, sensors, controllers.

Single circulation and simpler deployment

- Uses only oil circulation to eliminate secondary heat exchange.

B6D Ultra Edition

- Specially designed for high heat areas.
- Up to 40°C, the miner can still operate normally.
- Standard water curtain, use water to assist heat dissipation under high temperature conditions.

Cooling capacity adjustment

- According to the ambient temperature change, automatically adjusts the fan speed, to achieve dynamic energy saving.

Distributed management & remote control

- Status monitoring, abnormal alarms, batch restart, etc.

B6D dry cooler	
Outer size	1560(L)*952(W)*440(H) mm
Weight	117kg
Input voltage	3-phase 380-415V 50/60Hz
Heat Transfer	30kW@30°C 20kW@40°C
Operating temp	-10°C - 40°C
Display	1.32" OLED Screen
Coolant capacity	14L
Power	580W x2
Air volume	13000m ³ /h
Noise	65dB(A)
Pipe diameter	DN25
Pipeline	5m x2



BC40/20 - Immersion Cooling Container

*For professional miners and mining farms, we provide customized solutions to satisfy your requirement.



Immersion cooling turn-key solution

A container deployment method designed for large-scale users, providing customers with turnkey solutions, which can be quickly deployed, PUE<=1.03.



	BC40	BC20
Size	12192×2438×2896 mm	6058×2438×2896 mm
Amount of machines	B6 tanks *42 252 mining machines	B6 tanks *18 108 mining machines
Racks	B6R racks *14	B6R racks *6
Input voltage	3-phase 380V or 415V 50/60Hz	
Power load (max)	1.6MW (After overclocking)	0.7MW (After overclocking)
Output voltage	200-240V, 50/60Hz	
Network	100Mbps Ethernet switch	
Lighting	LEDs	
Ventilation	Exhaust fans *4	
External cooling	Closed water cooling tower	
Certification	UL Classification / CSC	
Ambient temperature	-5°C~40°C	
Channel width	1m safety and maintenance channel	
Internal system	Including B6 tanks, B6R racks, Circulation system, Power distribution, Network and IoT system.	
Cooling System	Including VFD variable speed pumps, water storage, sensors, backup pumps, filters and more.	
Others	<ul style="list-style-type: none">- More than 10-year lifetime for the container- Can withstand strong wind damage of 60 m/s- Emergency protection in case of power failure and water supply failure	



BC40/20 Closed-Circuit Cooling Tower

*For professional miners and mining farms, we provide customized solutions to satisfy your requirement.

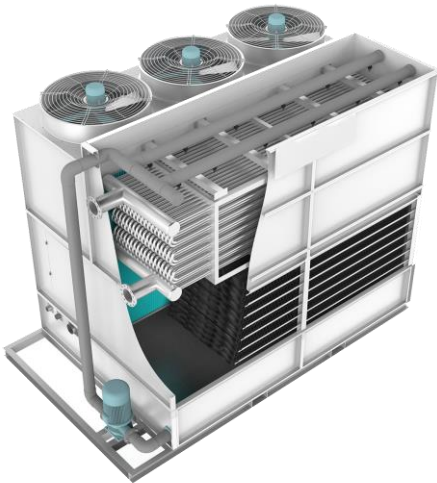


Selection of external cooling

- The external cooling facilities is in our customized turn-key solution.
- Evaporative water cooling is an effective and economic choice for external cooling.
- Both closed-circuit cooling tower and open-circuit cooling tower are used for different requirements.

Advantages of closed-circuit cooling tower

- Integrated molding, low deployment work
- Low operation and maintenance cost
- No limescale internally
- Water can be recycled better



BC40 Closed-Circuit Water Tower	
Cooling ability	1750000 kcal/h
Circulating water flow	350 m³/h
Fan power	11kW x 2
Fan air volume	125000m³/h x 2
Spray pump power	3kW x 2
Spray pump flow	150m³/h x 2
Spray pump head	5m
Inlet/outlet diameter	DN250
Working water pressure	0.05~1.0Mpa
Net weight	4520kg
Size	5300*2200*4600 mm
Input voltage	3-phase 350-480V 50/60Hz
Coil material	Stainless steel
Appearance material	Galvanized sheet
Protection class	IP55
Insulation class	F
Sprinkler pipe	PVC
Other accessories	Exhaust valve, blowdown valve, pressure gauge



FHC01 - Single-Phase Immersion Coolant



FHC01 Coolant

- This synthetic coolant developed by Fog Hashing Labs is single-phase dielectric liquid specially designed for ASIC mining equipment.
- Has passed the long-term compatibility test with every single component of the mining machine.

Product advantages

- Designed for long-term use (>5 years)
- Dielectric
- Strong thermal conductivity
- Non corrosive
- Non flammable
- Non volatile
- Non water-soluble
- Non toxic
- Low viscosity
- Safe and environment-friendly
- Economical

FHC01 Coolant	
Physical form	Liquid
Color	Colorless clear
Odor	Odorless or faint
Melting/freezing point	<-40°C
Boiling point	>290°C
Flash point	149 °C
Autoignition temperature	>310°C
Specific heat capacity at 40°C	2.24 J/(g·K)
Vapor pressure at 20°C	<0.013kPa (0.1mmHg)
Density	0.799g/cm ³
Water solubility	Insoluble in water
Pour point	-65°C
Kinematic viscosity	5.5 mm ² /s (40°C)
Thermal conductivity	134.66 mW/(m·K)
Breakdown voltage	60kV



30L



200L



1000L



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