



深圳市华胜贵金属设备科技有限公司

Shenzhen Hasung Precious Metals Equipment Technology Co., Ltd

HS-TF 手动浇铸熔炼设备

HS-TF Tilting Pouring Induction Melting Machine

使用说明书

User Manual



目 录 contents

前 言 Preface	1
一 产品概述 General.....	3
1 - 1 设备介绍 Introduction.....	3
1 - 2 设备主要技术参数 Technical parameter.....	3
1 - 3 设备安装 Installation	4
1 - 4 设备润滑与保养 Lubrication and maintenance.....	5
二. 操作使用说明 Operation instructions	5
2 - 1 运行准备 Operation preparation	5
2 - 2 手动操作 Manual operation.....	6
2-3 指示说明 Instructions.....	8
2 - 4 报警解除说明 Alarm release instructions	8
2 - 5 安全操作说明 Safe operation instructions.....	9
出厂检验合格证.....	10
Factory inspection certificate	11
装 箱 单 Packing List.....	13
保 修 卡 Warranty Card.....	14

前言 Preface

尊敬的用户：

您好!感谢您选购**熔炼铸造设备**. 我公司专业为客户设计制造各种贵金属设备。为使我们的设备更好地发挥其卓越的性能为贵公司生产服务, 请您在操作使用前仔细阅读产品说明书, 遵守安全注意事项, 严格按照规范设置技术参数, 操作设备。有什么问题请及时与我们联系, 我们将竭诚为您服务!

请妥善保管各项说明书和相关技术资料, 以备随时查阅!

Thank you for choosing the melting and casting machine. Our company specializes in designing and manufacturing various precious metal equipment for customers. In order to make our equipment give better play to its excellent performance and serve your company, please read the product manual carefully before operation and use, observe the safety precautions, set the technical parameters in strict accordance with the specifications, and operate the equipment. If you have any questions, please contact us in time, we will serve you wholeheartedly!

Please keep all the manuals and related technical data for reference at any time!

安全注意事项 Security

生产过程中始终遵守安全注意事项可以防止意外事故及潜在危险的发生!

- 1、请指定专业人员培训上岗维护, 操作设备。
- 2、发现问题及时解决, 不要让设备带病作业。
- 3、压力气泵、真空泵等外协设备工作时, 请确保安全可靠。
- 4、作业前有必要请您戴好劳保防护用品, 确保人身安全与健康。

Always follow the safety precautions during the production process to prevent accidents and potential dangers!

1. Please designate professionals to train for maintenance and operate equipment.
2. Solve the problem in time if the problem is found, and do not let the equipment work with illness.
3. When working with outsourcing equipment such as pressure air pumps and vacuum pumps, please ensure that it is safe and reliable.
4. It is necessary to wear labor protection equipment before operation to ensure personal safety and health.

危险 Danger

- * 必须单独使用可靠的接地线, 否则有被漏电, 静电击打的危险!
- * 各工位运转时严禁调整触摸, 否则有卷入切断的危险!
- * 高温部件(如坩埚)通电加热后禁止触摸, 否则有烫伤的危险!
- * 保持气路通排气畅通, 否则有放炮爆破的危险!
- * A reliable grounding wire must be used alone, otherwise there is a danger of electric leakage and static electricity!
- * It is strictly forbidden to adjust and touch when each station is running, otherwise there is a danger of being involved in cutting off!

* High temperature parts (such as crucibles) are not allowed to be touched after being heated by electricity, otherwise there is a danger of burns!

* Keep the gas path and exhaust unobstructed, otherwise there is a danger of blasting!

一 产品概述 General

1-1 设备介绍 Introduction

- 1、采用德国高周波加热技术、频率自动追踪及多重保护技术，能在短时间内熔解，节能环保，工作效率极高。
- 2、采用 Mistake Proofing（防呆）自动控制系统，操作更简单。
- 3、TFQ 熔炼设备是自主研发制造，具有先进技术水平的产品，专用于金、银、铜及其它合金的熔炼铸造。
- 4、本设备采用三菱 PLC 程控， SMC 气动驱动等国内外驰名品牌元器件；拥有自主知识产权，申报实用新型专利、发明专利等国家专利技术！
- 5、该机操作简单，保养方便，生产安全，质量可靠，适应性强，是贵金属及合金等电子材料素材及高纯度特殊线材的铸造生产厂家、高校、科研单位等相关行业必不可少的设备之一。

1. Adopt German high-frequency heating technology, automatic frequency tracking and multiple protection technology, which can be melted in a short time, energy saving and environmental protection, and high work efficiency. Saving energy.
2. The Mistake Proofing automatic control system is adopted, which makes the operation easier.
3. TF smelting equipment is independently developed and manufactured with advanced technical level products, specially used for the smelting and casting of gold, silver, copper and other alloys.
4. This equipment adopts PLC program control, SMC pneumatic drive and other well-known brand components at home and abroad; it has independent intellectual property rights, and declares utility model patents, invention patents and other national patent technologies!
5. The machine is simple to operate, easy to maintain, safe in production, reliable in quality, and highly adaptable. It is an indispensable equipment for foundry manufacturers, universities, scientific research units and other related industries for precious metals and alloys and other electronic materials and high-purity special wires.

1-2 设备主要技术参数 Technical parameter

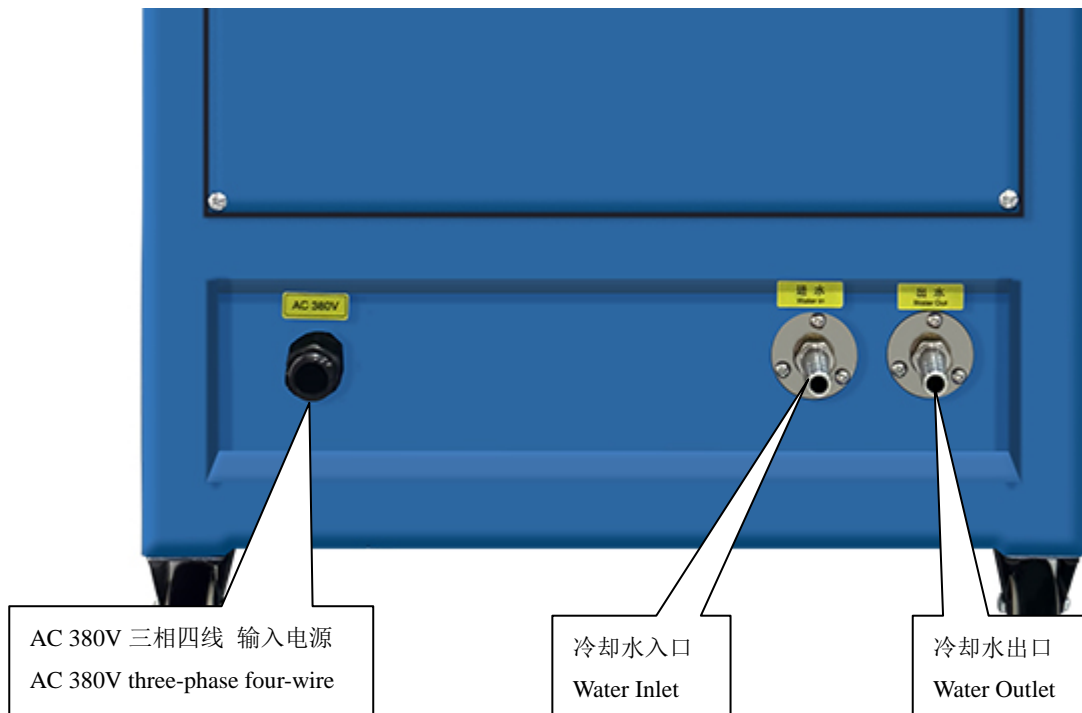
电源电压	AC 380V 50/60Hz 三相四线
输出功率	15KW, 20KW, 25KW, 30KW, 40KW

熔炼金属	黄金、银、铜及其它合金
最大容量	6kg-50kg (Au)
最高温度	1600°C
冷却水源	自来水/水冷机 (水压 0.2-0.4Mpa; 水温 18-22 度)
设备外形尺寸	115*49*102cm
设备重量	约 100 kg

Model No.	HS-TF6	HS-TF8	HS-TF10	HS-TF15	HS-TF20	HS-TF30	HS-TF50
Voltage	380V 50Hz 3 phases						
Power	15KW	20KW	20KW	25KW	30KW	30KW	40KW
Max Temp	1600°C						
Melting speed	2 - 5 Min.	3 - 6 Min.	3 - 6 Mins	3 - 6 Mins	3 - 6 Mins	6 - 10 Mins	6 - 10 Mins
Temp Accuracy	±1°C (optional)						
Temperature detector	PID Temperature Control / Infrared pyrometer (Optional), extra cost added.						
Capacity (Gold)	10KG	10KG	10KG	15KG	20KG	30KG	50KG
Application	Gold K-Gold Sliver Cooper and other alloys (Platinum, Palladiu, Steel, Rhodium is customzied)						
Cooling type	Water chiller(sold separately) or Running water (water pump)						
Dimensions					115*49*102cm	125*65*115cm	
Net Weight	approx. 100kg			120KG		150KG	180KG

1-3 设备安装 Installation

设备安装时注意调节各地脚的高度使设备保持水平。安装地点应注意设备操作、维护和修理的必要空间。(请参阅设备布置图)。**注意：冷却水必须接有备用水，防止停水、停电损坏设备。**



1—4 设备润滑与保养 Lubrication and maintenance

- 1、每班保持设备清洁，转动部分转动灵活。
- 2、密封件定期更换（60 天更换一次）。
- 3、保持控制箱内清洁。（30 天清洁一次）。

1. Keep the equipment clean in each shift, and the rotating part can rotate flexibly.
2. Regular replacement of seals (replace once every 60 days).
3. Keep the control box clean. (Clean once every 30 days).

二. 操作使用说明 Operation instructions

2—1 运行准备 Operation preparation

- 1、请合上主电源开关。
- 2、请打开操作电源开关（断路开关）。

注：打开操作电源后，电源指示灯亮，以做通电提醒。

检查冷却水开关，并打开冷却系统。

1. Please close the main power switch.
2. Please turn on the operating power switch (disconnect switch).

Note: After turning on the operating power, the power indicator will be on to remind you to power on.

Check the cooling water switch and turn on the cooling system.

2-2 手动操作 Manual operation

2-2-1 动作 Action

1) 检查电源、冷却水路是否正常。

1) Check whether the power supply and cooling water circuit are normal.

2) 将坩埚放入加热线圈内，对准出口，然后用压杆压好坩埚。

2) Put the crucible into the heating coil, aim at the outlet, and then press the crucible with the



3) 将需要熔化的金属材料加入坩埚内。

4) 然后按加热启动，调整您所需要的功率大小。

5) 当材料熔化后，开始浇铸，浇铸完成后按一下停止开关，关闭加热。

3) Put the metal material to be melted into the crucible.

4) Then press heating start to adjust the power you need.

5) When the material is melted, start melting, After melting is completed, pull the handle to pour metal liquid into the mould, (when pouring, heating keeps until almost finished pouring, then heating stops automatically.). After melting job finished, press the stop switch to turn off the heating.



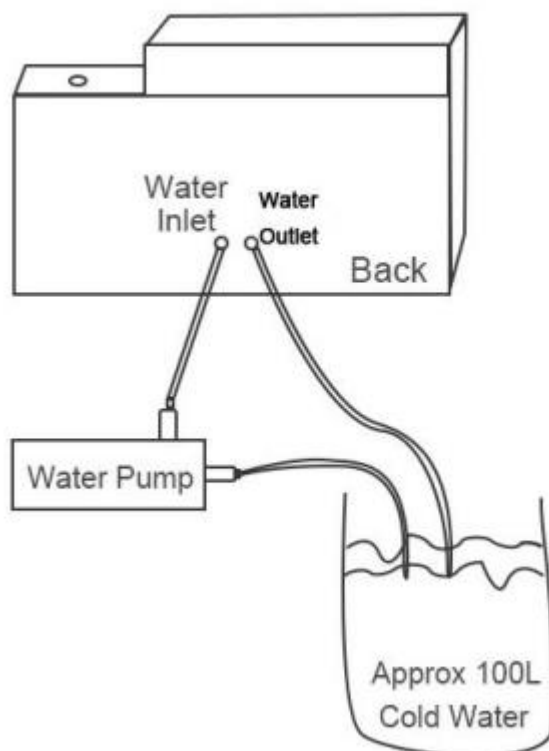
浇铸
Pouring metal liquid

- 6) 停机：浇铸完成后，冷却水继续运行冷却，直到温度降到 100 度以下，然后关闭，关闭水、电总开关及阀。
- 6) Shutdown: After the casting is completed, the cooling water continues to run and cool until the temperature drops below 100 degrees, and then shut down, turn off the water and electricity main switches and valves.

Machine connections.

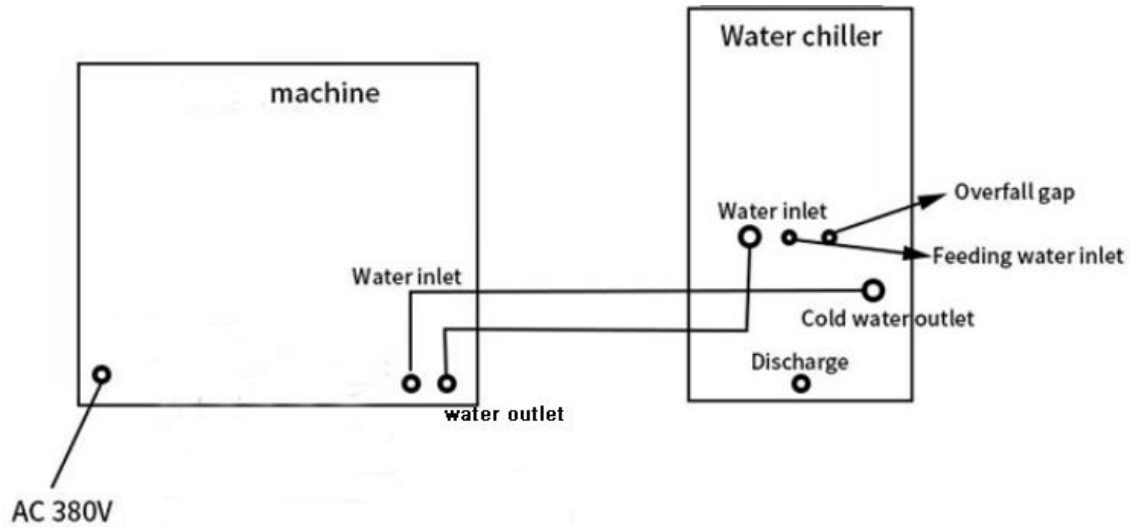
- 1) Connect to 380V power
- 2) Water inlet to chiller outlet of cold water, water outlet to chiller inlet of water.

Using water pump with water tank connections:



500 – 2000 litres

Using water chiller connections:



2-3 指示说明 Instructions

2-3-1 电源 Power supply

控制开关打开时亮，功率表显示，此时电源及开关电源接入。

Lights when the control switch is turned on, the power meter displays, and the power supply and switching power supply are connected at this time

2-3-2 运行准备 Operation preparation

按动工作启动按钮后，工作指示灯亮，当按动工作停止时，工作指示灯灭。

After pressing the work start button, the work indicator light is on, and when the work is stopped, the work indicator light is off.

2-3-3 过热 Overheat

当设备冷却水未打开或流量未能达到要求时，过热指示灯亮；正常时工作指示灯亮。

When the cooling water of the equipment is not turned on or the flow rate fails to meet the requirements, the overheat indicator light will be on; when it is normal, the work indicator light will be on.

2-4 报警解除说明 Alarm release instructions

1、请打开设备冷却水开关。

2、确认冷却水流量及压力。

1. Please turn on the equipment cooling water switch.

2. Confirm the cooling water flow and pressure.

2-5 安全操作说明 Safe operation instructions

2-5-1 在运行前应注意的事项

- 1) 请确认水、电接入是否正确。
- 2) 请确认坩埚是否正确。
- 3) 请确认设备上是否有异物。
- 4) 确认正常后，启动设备。
- 5) 设备启动后，请确认冷却水水压是否正常，是否有异常声响。

2-5-1 Matters needing attention before operation

- 1) Please confirm whether the water and electricity connection is correct.
- 2) Please confirm whether the crucible is correct.
- 3) Please confirm whether there are foreign objects on the equipment.
- 4) After confirming that it is normal, start the device.
- 5) After the equipment is started, please confirm whether the cooling water pressure is normal and whether there is any abnormal sound.

2-5-2 在运行中应注意的事项

- 1) 启动加热开关后，不要断水【如果意外断水(停电),可即刻打开备用水龙头，以防止烧坏发热圈】。
- 2) 不要按动急停以外的其它按钮或开关。
- 3) **没放坩埚及金属材料，严禁加热。**
- 4) 工作指示灯不亮，不能加热。
- 5) 机器不能放置在有腐蚀性的车间里。
- 6) 冬天注意防冻，防止水管结冰破裂，冰水机水箱内可加 12 升防冻液。
- 7) 熔料的外形尺寸应小于模具尺寸，以防加热胀爆坩埚。

2-5-2 Matters needing attention in operation

- 1) After turning on the heating switch, do not cut off the water [If you accidentally cut off the water (power outage), you can immediately turn on the backup faucet to prevent the heating coil from burning out].
- 2) Do not press any buttons or switches other than emergency stop.
- 3) The crucible and metal materials are not placed, and heating is strictly prohibited.
- 4) The work indicator light is off, and it cannot be heated.
- 5) The machine cannot be placed in a corrosive workshop.
- 6) Pay attention to antifreeze in winter to prevent freezing and cracking of water pipes. 12 liters of antifreeze can be added to the water tank of the chiller.
- 7) The outer dimensions of the melt should be smaller than the mold size to prevent the crucible

from exploding when heated.

2-5-3 在运行结束时应注意的事项

- 1) 每次材料生产完成以后，必须要等到机器熔炉坩埚的温度降到 100℃ 以下，才可以关闭设备冷却水；
- 2) 然后请切断水源、电源、气源；
- 3) 请用本公司专用模具。擅自改变模具尺寸, 损坏机器后果自负。

2-5-3 Matters needing attention at the end of operation

- 1) After each material production is completed, you must wait until the temperature of the crucible of the machine furnace drops below 100 °C before turning off the equipment cooling water;
- 2) Then please cut off the water source, power source and air source;
- 3) Please use our company's special mold. Change the size of the mold without authorization, and damage the machine at your own risk.

出厂检验合格证

设备名称: 手动浇铸熔炼设备

设备型号: HS-TF

设备编号: _____

1、设备测试

设备测试的目的是为了验证设备质量和配置是否合格。对每一台设备均进行如下测试：

A、设备启动

启动：对单个设备多次开关电源，观察每次均能否正常启动。

B、设备状态

配合产品说明书，检查设备指示灯是否正常。记录指示灯状态。

C、减速机检查及功能测试

用被测产品（有管理软件则包含软件）检查设备的减速机，看通过减速机是否能够连接上并且操作设备进行测试。如测试结果符合产品说明，即为正常。

D、物理检查

对设备进行物理检查，检查设备出厂型号、编号、产地、附件、资料、软件等内容，与合同和产品说明一致为正常。

E、外观检查

对设备进行外观检查，检查设备外观应整洁，尺寸、形状符号设计或合同要求，无明显色差，无明显锈蚀，标识清楚、正确。

2、基本测试

测试项目	检查内容	检验标准	检验结果	备注
设备启停状态测试	设备上电开机自检	开机正常	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	设备断电停止正常	断电正常	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	状态指示灯和仪表	工作正常	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
装配性能测试 外观检查 物理检查	接线是否正确	正确、可靠	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	操作结构是否正常	操作灵活可靠	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	紧固件安装是否正常	安装到位、紧固	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	尺寸、形状	符合设计和合同要求	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	颜色	符合要求、无色差	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	标识	标识清楚正常	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	
	铭牌、资料、附件是否正常	清晰、正确、齐全	<input checked="" type="checkbox"/> 通过 <input type="checkbox"/> 未通过	

Factory inspection certificate

Name: Manual Pouring Induction Melting Machine

Model: HS-TF

Machine ID: _____

1. Machine test

The purpose of machine testing is to verify the quality and configuration of equipment. The following tests are performed on each device:

A. Startup

Startup: Switch the power on and off for a single device several times and observe whether it can be started normally each time.

B. Status

In conjunction with the product manual, check whether the equipment indicator is normal. Record the status of the indicator light.

C. Reducer inspection and function test

Check the reducer of the equipment with the product under test (with management software, including software) to see if the reducer can be connected and operate the equipment for testing. If the test result meets the product description, it is normal.

D. Physical inspection

Physically inspect the equipment, check the factory model, serial number, place of production, accessories, materials, software, etc., and it is normal that they are consistent with the contract and product description.

E. Visual inspection

The appearance of the equipment should be inspected. The appearance of the inspection equipment should be tidy, the size, shape, symbol design or contract requirements, no obvious color difference, no obvious rust, and the identification is clear and correct.

2. Basic test

Test items	Check content	Standards	Test result	Remarks
Start-stop state test	power-on self-test	Boot normally	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	Power failure stops normal	Normal power failure	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	Status indicators and gauges	normal operation	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
Assembly performance test Visual inspection Physical inspection	Is the wiring correct	Correct and reliable	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	Whether the operating structure is normal	Flexible and reliable operation	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	Whether the fasteners are installed properly	Installed correctly and tightly	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	Size, shape	Meet design and contract requirements	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	colour	Meet the requirements, no color difference	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	Logo	Clearly marked and normal	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	
	Nameplate, information, accessories	Clear, correct and complete	<input checked="" type="checkbox"/> Pass <input checked="" type="checkbox"/> Fail	

装箱单 Packing List

配件 (工具) Accessories (tools)	单位 unit	数量 Quantity	备注 Remarks
手动浇注铸造设备 Manual Pouring and Casting Machine	台/set	1	
石墨坩埚 Graphite crucible	个/pcs	1	
石英外套 Quartz shell	个/pcs		
石英坩埚 Quartz crucible	个/pcs	1	
坩埚钳 Crucible pliers	件/pcs	1	
水管 water pipe	米/m	4	
喉箍 Throat clamp	个/pcs	4	
说明书 User's manual	件/pcs	1	
出厂检验合格证 Factory inspection certificate	件/pcs	1	
保修卡 Warranty Card	件/pcs	1	

保修卡 Warranty Card

产品型号 Model	HS-TF	出厂编号 Serial number		售机日期 Sale date	
维修记录 Maintenance records					
日期 Date	故障现象 Failure phenomenon	处理措施 Treatment measures	签名 signature		

保修说明 Warranty description

- 1、TF 系列产品一年内出现品质故障，公司负责免费维修，一年以上，实行有偿服务，收费标准按公司规定执行。
- 2、免费保修仅限于正常使用下有效，私自拆装或维修部件的自然磨损，不当使用或安装自然灾害等非产品本身质量问题，均不在免费维修范围内。
- 3、客户凭保修卡保修。

1. TF series products have quality failures within 2 years, and the company is responsible for free maintenance. For more than 2 years, paid services are implemented, and the charging standards are implemented in accordance with the company's regulations. Consumables such as crucible and heating coil are not under warranty.
2. The free warranty is valid only under normal use, and the natural wear and tear of parts that are disassembled or repaired privately, improper use or installation of natural disasters and other non-product quality problems are not within the scope of free repairs.
3. The customer provides the warranty with the warranty card.

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