ATS-Chill V Series

ATS-Chill2300V

Re-Circulating Chiller Instruction Manual

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ATS ADVANCED THERMAL SOLUTIONS, INC.
Innovation in Thermal Management®

Warranty Agreement

Limited Warranty

Advanced Thermal Solutions, Inc. (hereinafter “ATS”) warrants that: (1) ATS-Chill2300V will perform in accordance with the written materials and any Hardware will be free from defects and errors in materials and workmanship and covered for a period of one year from the date of purchase if utilized under normal use and service.

Customer Remedies

Advanced Thermal Solutions, Inc. and all its suppliers’ entire liability and the consumer’s exclusive remedy shall be at ATS’s option, either for the return of the price paid or the repair and replacement of the Software or Hardware that does not meet the limited warranty and which is returned to ATS. The limited warranty is deemed to be null if the failure of the accompanying material results from an accident, abuse, and/or misapplications.

ATS and its suppliers disclaim any and all other warranties whether expressed or implied, including but not limited to implied warranties of merchant ability and fitness for a particular purpose, with regard to hardware material. This limited warranty provides you with specific legal rights; however, you may have other rights which would vary from state to state.

No Liability for Consequential Damages

In no event shall ATS or its suppliers be liable for any damages whatsoever arising out of the use of or inability to use this product, even if ATS has been advised of the possibility of such damages. However, some states do not allow the exclusion or limitation of liability for incidental damages, hence this limitation may not apply.

Copyright

The ATS Chiller-V-Series™ family, including the ATS-Chill2300V, and its operating software are part of Advanced Thermal Solutions, Inc.’s full range of liquid and air cooling products.

Disclaimer

While every effort is made to ensure accuracy, Advanced Thermal Solutions, Inc., cannot be held responsible for errors or omissions in this manual. Furthermore, it reserves the right to revise this document and make changes without notice.

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Section 1: Safety Notes

1. Safety Notes

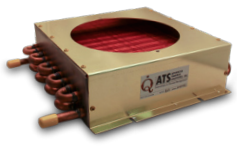
- Transport the equipment with care
- The unit must NEVER be overturned nor put upside down
- The equipment and its internal parts can be damaged:
  - by dropping
  - by shock
- The equipment should only be operated by properly instructed personnel
- Never operate the equipment without bath coolant
- Do not start up the equipment if:
  - it is damaged or leaking
  - the supply cable is damaged
- Switch off the equipment and pull out the mains plug for:
  - servicing or repair
  - before moving the equipment
- Drain the bath before moving the equipment
- Have the equipment serviced or repaired only by properly qualified personnel

Please carefully read all instructions and safety notes prior to equipment operation. If you have any questions please call **781-769-2800**. Follow the instructions on setting up, operation etc. This is the only way to exclude incorrect operation of the equipment and to ensure full warranty protection

Other ATS Liquid Cooling Products:

- Flow Meters
- Leak Detectors
- Cold Plates
- Heat Exchangers





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Section 2: Unpacking

The ATS-Chill V Series, including the ATS-Chill2300V, chillers are packed carefully to prevent damage in transport. After unpacking, first check the equipment and accessories for possible transport damage. If, unexpectedly, the equipment is noticeably damaged, it is essential to notify the forwarding agent or the postal authorities so an inspection can take place. **Do not start operations with damaged instruments.** The unit may **NEVER** be overturned nor put upside down.

Section 3: Equipment Description

Overview

The ATS-Chill2300V Chiller is an advanced fluorine-free refrigeration system. Featuring a temperature range of -40 to 100°C, with a temperature fluctuation of ±0.05°C. The ATS-Chill2300V can be used in a wide number of applications including petroleum, chemical, laboratory testing, pharmaceutical research & manufacturing, industrial processing, sensor calibrations, bio-medical testing, laser thermal management, component characterization and more.

Specifications

- Digital display resolution: 0.01
- Temp. Range (°C) -40 to 100
- Temp. Fluctuation (°C) ±0.05
- Capacity (L) 6
- Tank Size (LxWxD mm) 290 x 18 0 x 210
- Cooling Capacity (W) 2300
- Flow Rate (L/min) 13
- Fluid Types Alcohol, Pure Water, Mixture of Water and Glycol, Pure Glycol.
- Tube Material Silicone
- Inlet/Outlet Connection (Figure 1) Male, thread designation G1/2, nominal size 1/2", thread form BSPP, major diameter: 20.955mm (0.825in.), pitch: 1.814, threads per inch: 14

Figure 1 Fluid inlet and outlet

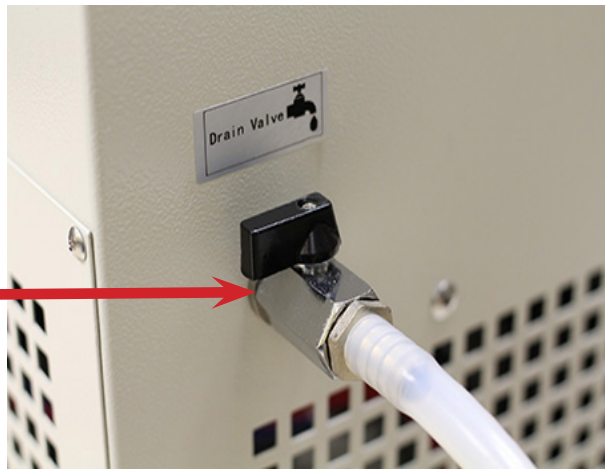
Specifications (continued)]

A Pagoda connector is used to connect the chiller to an external fluid source reservoir.

Inlet/Outlet
Connection with
Pagoda Connectors

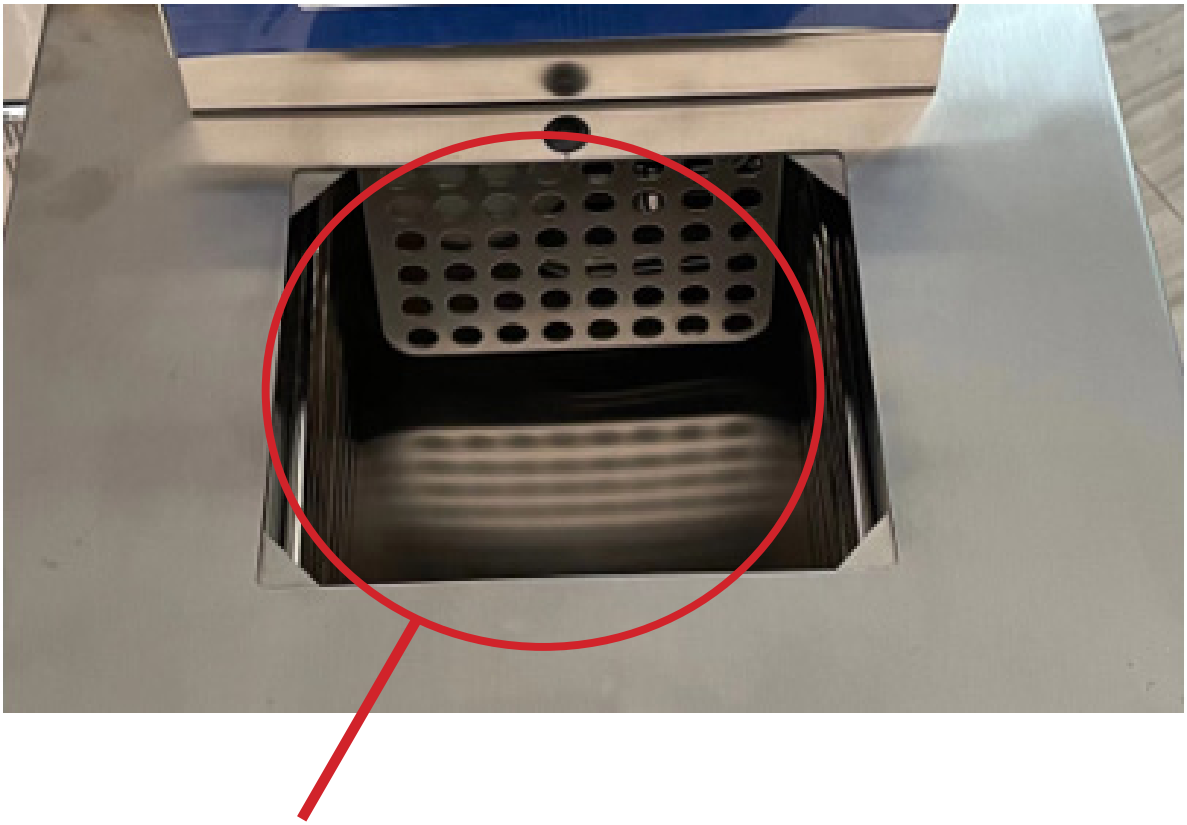
The drain port is a female connection, BSPP thread designation G1/2, nominal size 1/2", thread form BSPP, major diameter 20.955mm (0.825in.), pitch 1.814, threads per inch 14. The drain port also has a Pagoda connector, with an outer diameter of 12mm.

Drain port with
Pagoda connector



Specifications (continued)]

The port filling size is 180x140mm



Filling is done here on the top of the ATS-Chill2300V

Technical Features

- Totally enclosed compressor refrigeration system.
- Non-freon refrigeration technology, saves energy and protect environment.
- Temperature range: -40 to 100°C can be selected. The fluid can be water, ethylene glycol, alcohol, etc. according to the temperature range.
- Vapor compression cycle with rapid cooling and low noise.
- Temperature control function: Integrated latest generation PID automatic temperature control with a high precision PT100 temperature sensor.
- Large high-brightness LCD screen. The digital display resolution is: 0.01°C to ensure accurate and stable temperature control.
- The inlet and outlet connection uses a Pagoda head to connect between pipe & interface), The outer diameter of the Pagoda interface is 12mm.

Safety Protection:

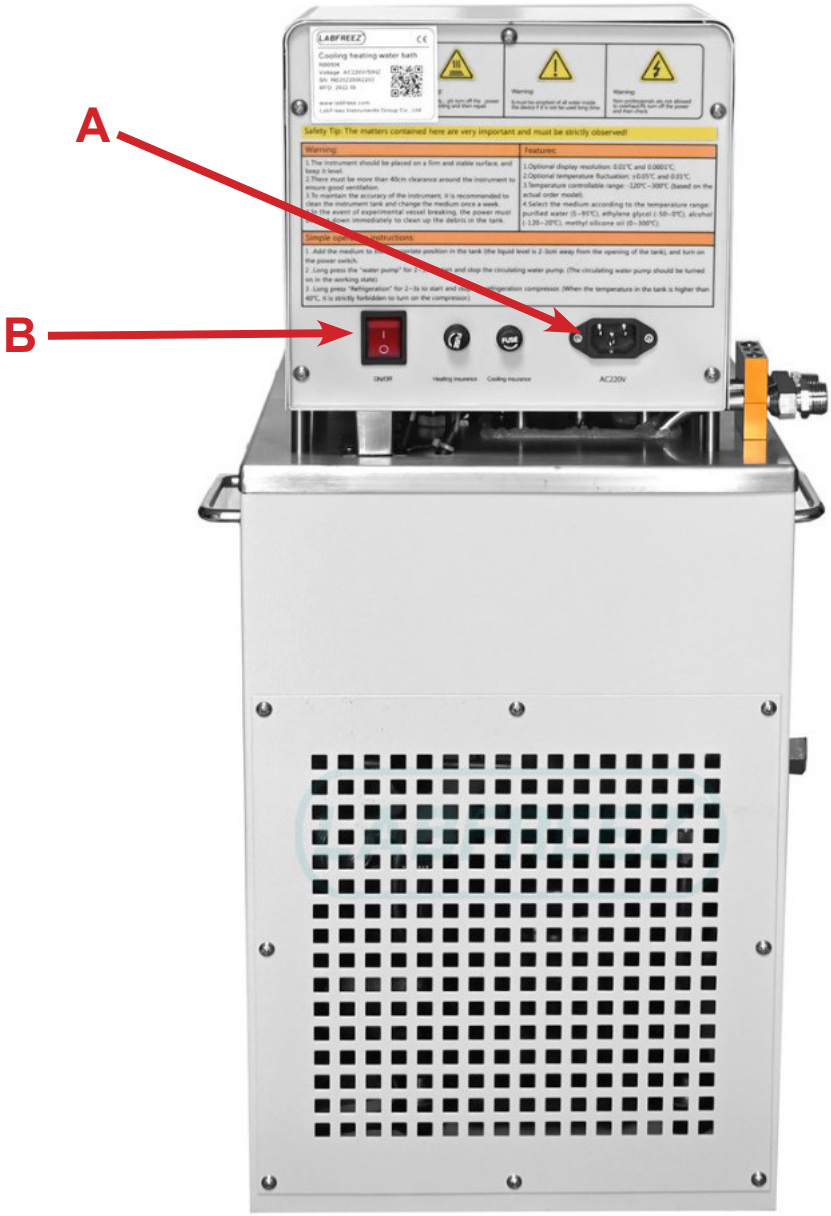
- Power-off protection function.
- Upper and lower temperature alarm settings function.
- Overheating protection and automatic power shut down and alert.
- Over current automatic protection.

Section 4: Brief Instructions

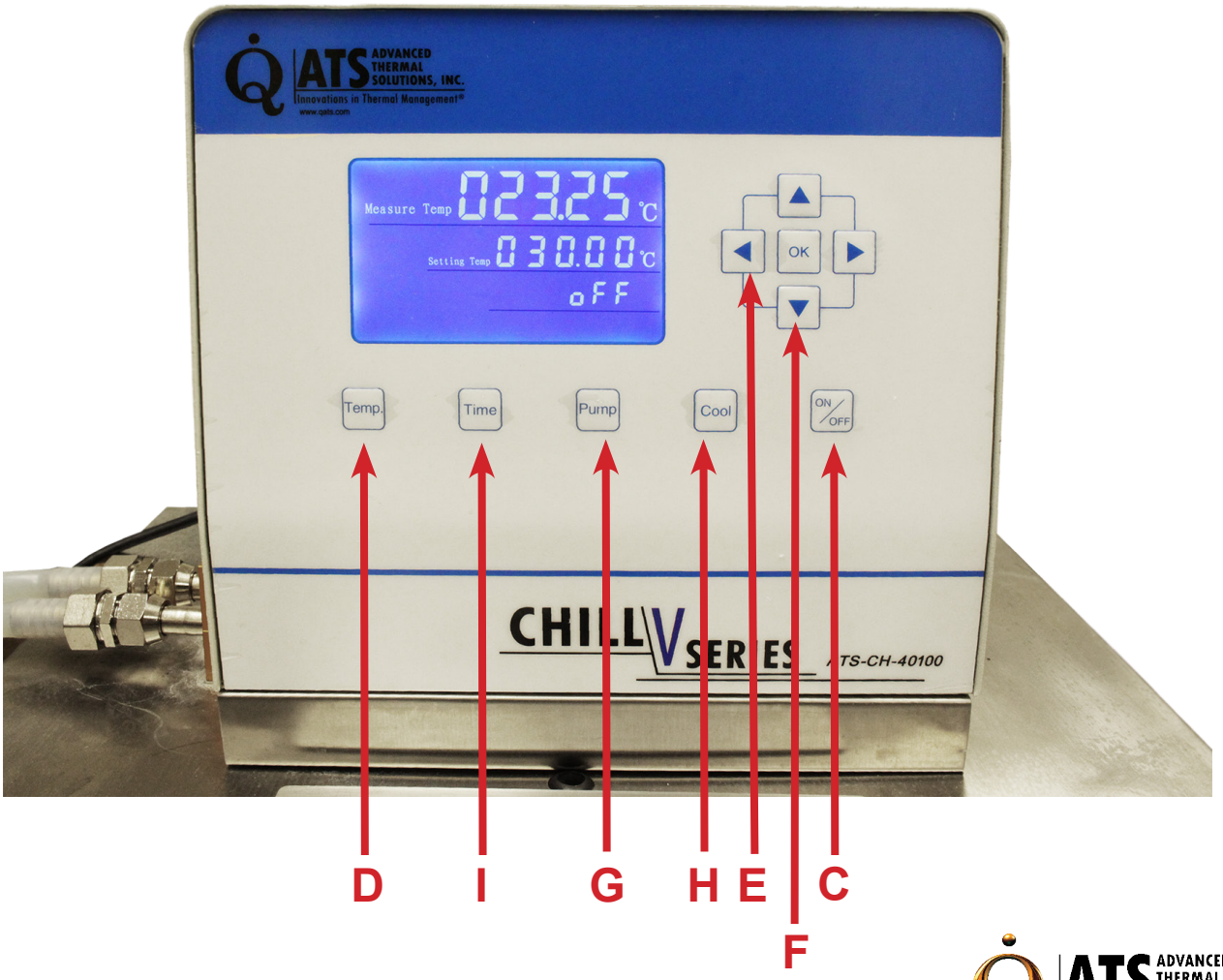
4.1 Assembly and Set-up

It is advisable to set up the equipment so that the control unit is towards the front and that the ventilation for the refrigeration unit, especially on equipment with an air-cooled condenser, (ventilation grille in lower part) is not impeded. Ensure a minimum spacing of 0.5m between ventilation grille and wall.

4.2 System Operation First, plug the AC power (**A**) into 115VAC wall outlet. Then turn the ON/ OFF Switch (**B**) to ON.



- Press the (**C**) for 2 to 3 seconds until you hear the beep.
- Set the temperature by pressing (**D**) for 2 to 3 seconds and wait for beep. Then go to left or right arrow (**E**) to select the digit you want to change. Then use up or down arrows (**F**) to change value then press OK.
- Press pump (**G**) for 2 to 3 seconds until you hear the beep.
- Press cool (**H**) for 2 to 3 seconds until you hear the beep.
- Press Time (**I**) for 2 to 3 seconds until you hear the beep. If you want the system to run indefinitely set the time at 0. If you want the system to run at a specified amount of time enter the value in minutes. The system will shut off after the time has expired and a buzzer will go off to remind the user system has shut down.



Section 5: Recommended Fluids

Recommended Fluids Based on Operating Temperature	
When the System Operating Termperature is below:	The following fluids may be used:
Below + 5°C	Alcohol
Between + 5°C and 80°C	Pure Water
Between 80°C and 90°C	Mixture of Water and Glycol
Between 90°C and 100°C	Oil

Section 6: Cautions

- The system should be placed on a firm and stable surface and kept horizontal.
- A space of more than 40cm (1.5ft) must be reserved around the system to ensure good ventilation.
- To maintain the accuracy of the system, it is recommended to clean the system tank and replace the coolant once a week.
- If the system is broken, it must be powered off immediately and the debris in the tank must be cleaned up.
- It is strictly forbidden to place the system near a high temperature heat source or direct sunlight.
- The surface coating of the system is strictly prohibited from contact to strong corrosive acid-base or organic chemical solvents, such as gasoline..
- If the system will not be used for a long time, please be sure to thoroughly clean and wipe the inside of the tank.
- To avoid burns and injury, before repairing the system, please turn off the power and let the system cool down completely.
- During long term storage, the coolant in the system must be completely drained.
- System repair and maintenance need to be performed by a skilled technician while the power switch is in the off position.

7. Technical Data

Specifications for Chill-V Series				
Model	**Chill150V**	**Chill300V**	**Chill600V**	**Chill2300V**
Temperature range	5~35°C	5~35°C	5~35°C	-40~100°C
Temperature Stability	±0.1°C	±0.1°C	±0.1°C	±0.05°C
Cooling Capacity at 20°C	150W	300W	600W	2300W
Pump Pressure	0.3 bar	0.8 bar	0.8 bar	1.0 bar
Maximum Flow Rate	10 L/min	15 L/min	15 L/min	13 L/min
Working mode	Continuous	Continuous	Continuous	Continuous
Filling Port	Ø25 mm	Ø25 mm	Ø25 mm	Large Square Opening, see Specifications section, page 7
Reservoir Capacity	1.0 L	4.0 L	5.0 L	6.0L
Inlet / Outlet Connection Type	1/4” NPT Female	1/2” NPT Female	1/2” NPT Female	1/2”NPT Male
Dimensions (W x D x H)	230 x 260 x 380mm (9.06 x 10.24 x 14.96”)	235 × 475 × 490mm (9.25 x 10.24 x 19.29”)	325 x 620 × 550nn (12.8 x 24.4 x 21.65”)	180 x 210 × 290mm (7.0 x 8.26 x 11.41”)

8. Maintenance

7.1 Cleaning

- Before cleaning the equipment, remove the main plug.
- The unit can be cleaned with water with the addition of a few drops of a detergent (washing-up liquid), using a moist cloth.
- Water must not enter the control unit.
- The user is responsible for carrying out an appropriate detoxification of any dangerous material which has been spilled on or in the unit. This applies in particular when the unit is passed on to someone else for operation, repair, storage etc.

7.2 Maintenance of the refrigeration unit

- The refrigeration unit operates largely maintenance-free. If the unit is being operated in a dusty atmosphere the condenser of the refrigerator has to be cleaned at intervals of 4 to 6 months or more frequently. This is best done by blowing compressed air or nitrogen into the ventilation openings for a few minutes.
- It may be useful to unscrew the grill. This can be done by screwing off the ventilation grid, then cleaning the condenser with a vacuum cleaner (using the brush-top).

7.3 Repair and disposal instructions

- The refrigeration unit is filled with refrigerant. Repair and disposal must only be carried out by a qualified refrigeration technician.
- Before you return the equipment for servicing it is advisable to contact our Technical Service department.
- If the equipment has to be returned to the factory, please ensure that it is carefully and properly packed. We accept no responsibility for damage due to unsatisfactory packing.

Advanced Thermal Solutions, Inc.

Advanced Thermal Solutions, Inc. (ATS), headquartered in Norwood, MA, was founded in 1989 as a design-services company. After more than 30 years in this market, ATS has evolved into a company that designs and manufactures industry leading thermal management solutions for the electronics market. ATS' products are designed to provide the market with enabling cooling solutions, in air, liquid, and refrigeration. ATS' patented and standard products include heat sinks, liquid cold plates, heat pipes, vapor chambers, refrigeration systems, liquid cooling systems, air filtration, and a unique class of research quality thermal testing instruments. All of ATS' products are supported by three state-of-the-art laboratories, manufacturing facilities and highly trained engineering staff, providing design and product development services to the market. ATS has engineering and software development offices in the U.S. and India. They have a manufacturing center in the U.S., strategic partnerships with global manufacturers and a global distribution center in China. ATS' unique and patented products are sold through a strong network of tier-one international distributors. Customer support for ATS' products is provided by a global team of sales representatives.

For further technical information, please contact Advanced Thermal Solutions, Inc. (ATS) by calling **781.769.2800,** emailing **ats-hq@qats.com** or visiting **www.qats.com**.

RoHS COMPLIANT

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