

200F / 201F / 300F
310F / 449F / 450F
600F / 601F / 800F
1000F / 1001F / 1200F
1201F / 1800F / 2500F



Basic cooling baths

Translation of the original operating manual

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2026/06/11
US

Foreword

Congratulations

You have made a good choice.

JULABO thanks you for the trust you have placed in us.

These operating instructions are intended to familiarize you with the operation and possible applications of our appliances. Please read the operating instructions carefully. Keep the operating instructions to hand at all times.

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1 General information

1.1 About these operating instructions

These operating instructions contain important notices for the safe commissioning, operation and maintenance of the devices listed on the cover page.

It is intended for all persons who install, operate or maintain these appliances.



NOTE

Observe the safety instructions!

Read the operating instructions in full before commissioning the appliance and keep them for future reference.

1.2 Accessories

JULABO offers a wide range of accessories for the devices. The accessories are not described in these operating instructions.

The complete range of accessories for the devices described in these operating instructions can be found on our website www.julabo.com. Use the search function on the website.



NOTE

Only use original JULABO accessories!

Use of unsuitable accessories voids the JULABO warranty.

1.3 Symbols used

Various symbols are used in these operating instructions to make them easier to understand. The list describes the symbols used.

- ▶ Prerequisite for the following procedure
- 1. Numbered action steps
- ⇒ Intermediate result for individual steps
- ✓ Final result of a procedure
- < > Terms in angle brackets indicate operating menus
- [] Terms in square brackets refer to keys, softkeys and buttons

1.4 Operator obligations

The operator must comply with the following obligations in order to ensure safe operation:

- The operator is responsible for the qualification of the operating personnel.
- The operator is responsible for instructing the operating personnel on how to use the appliance.
- Instruct the operating personnel at regular intervals about the dangers arising during their activities and the measures to prevent them.
- The operator must ensure that the persons entrusted with operation, installation and maintenance have read and understood the operating instructions.
- The device may only be configured, installed, maintained and repaired by appropriately qualified personnel.
- If hazardous substances or substances that could become hazardous are used, the device may only be operated by persons who are qualified to handle these substances and the device.
- The operator must ensure that the appliance is checked for safe and proper condition at regular intervals depending on its use.
- The operator must ensure that the mains supply has a low impedance in order to avoid interference with devices that are operated on the same mains supply.
- The appliance is not suitable for children or persons with mental or severe physical disabilities.

1.5 Qualification of the operating personnel

Technical personnel are defined as persons who have successfully completed vocational training. They must be able to assess the work assigned to them and independently recognize and avoid potential hazards based on their technical training and professional experience.

2 Safety instructions

2.1 Meaning of the warnings

The operating instructions contain warnings intended to increase safety when using the appliance. Always follow the warnings.

A warning sign in signal color precedes the signal word. The colored signal word classifies the severity of the danger.



DANGER

The signal word indicates a hazard with a high degree of risk which, if not avoided, will result in death or serious injury.



WARNING

The signal word indicates a hazard with a medium degree of risk which, if not avoided, could result in death or serious injury.



CAUTION

The signal word indicates a hazard with a low level of risk which, if not avoided, may result in minor or moderate injury.



NOTE

The signal word indicates a potentially harmful situation. If it is not avoided, the system or objects in its vicinity may be damaged.

2.2 General safety instructions

The appliance is built according to the state of the art and recognized safety regulations. Nevertheless, its use may pose a risk to the life and limb of the user or third parties.

Read and observe the following safety instructions before use.



CAUTION

Improper use!

If the appliance is used in a manner not intended by the manufacturer, the protection provided by the appliance may be impaired.



CAUTION

Take the appliance out of operation immediately and disconnect it from the power supply in the event of

- Leakage of medium (leakage),
- Unusual noises, odors or vibrations,
- Smoke, sparks or flames in or on the appliance.

Do not continue to operate the appliance. The appliance may only be put back into operation after it has been professionally checked and repaired by qualified personnel.



DANGER

Electric shock from electrical system!

Touching damaged live parts can lead to serious electric shocks and can injure or kill people.

- Have damaged insulation and components of the electrical system repaired immediately by a JULABO service technician or a qualified specialist workshop.
- Replace damaged mains cables immediately.
- Do not operate the appliance if the mains cable is damaged.
- When making a connection with a mains plug, this must always be freely accessible.



DANGER

Danger to life due to electric shock!

An electric shock can cause serious injury or even death.

- Only operate the appliance on a mains connection protected by an RCD (type B, $I_a = 30 \text{ mA}$).
- Only operate the appliance on mains sockets with a protective earth contact (PE).



DANGER

Danger to life due to electric shock!

An electric shock can cause serious injury or even death.

- Live parts are enclosed in the appliance housing. If the appliance housing is damaged, live parts can be touched.
- If the appliance housing is damaged, do not connect the appliance to the power supply!



DANGER

Danger to life due to electric shock!

An electric shock can cause serious injury or even death.

- The appliance may only be opened by a qualified electrician.
- Work on the electrical system may only be carried out by qualified electricians.



WARNING

Risk of burns from flammable heat transfer fluid!

If a flammable heat transfer fluid is used, it can ignite and cause severe burns on contact with the skin.

- Ensure that no ventilation openings are blocked.
- Do not smoke! No naked flames!
- When working in the vicinity of the device and the application system, do not use any electrical parts that can generate sparks.
- Drain and refill the heat transfer fluid when the device is idle, the heat transfer fluid is used with an open bath tank and the heat transfer fluid is highly volatile at ambient temperature.
- The surface temperature of a flammable heat transfer fluid must not reach the flash point of the heat transfer fluid under normal conditions and under conditions of a single fault.
- When using a flammable heat transfer fluid, attach a sign with the symbol  to the appliance.



WARNING

Hot surfaces!

The following parts and components can become hot during operation or remain hot for some time after operation:

- Heat transfer fluid
- Connections for external application
- Condenser

Contact may cause severe burns or scalds to hands, arms, face and limbs.

- Keep sufficient distance from hot surfaces and liquids.
- Wear suitable protective gloves.

**WARNING****Suspended loads!**

Falling loads can cause serious injury and damage the appliance.

- Do not stand under suspended loads.
- Transport the appliance with suitable and safe lifting gear.
- Wear personal protective clothing.

**WARNING****Maintenance and repair work!**

Improper maintenance and repair work endangers operational safety. This can result in serious injury or death.

- Only carry out work that is described in these operating instructions.
- Before starting work, switch off the appliance and disconnect the mains plug.
- Repairs may only be carried out by JULABO service technicians or an authorized specialist workshop.

**NOTE****No liability if unsuitable temperature control media are used!**

Unsuitable temperature control media that have not been approved by JULABO can damage the device.

- Use temperature control media recommended by JULABO.
- Check parts in contact with the heat transfer fluid for compatibility before filling.
- Do not exceed the maximum permissible viscosity during operation.
- Consult JULABO before using a heat transfer fluid other than the recommended one.

**NOTE****Only use original JULABO spare parts!**

Use of non-original spare parts voids the JULABO warranty.

**NOTE****Only use original JULABO accessories!**

Use of unsuitable accessories voids the JULABO warranty.



NOTE

Wear personal protective equipment!

Missing or unsuitable personal protective equipment increases the risk of damage to health and injury to persons.

Examples of personal protective equipment are

- Work gloves
- safety shoes
- protective clothing
- respiratory protection
- hearing protection
- Face and eye protection
- Determine and provide personal protective equipment for the respective application.
- Only use personal protective equipment that is in proper condition and provides effective protection.
- Adapt personal protective equipment to the person, e.g. size.



NOTE

Keep safety signs in legible condition!

Safety signs on the appliance warn of hazards at danger points and are an important part of the safety equipment of the appliance. Missing safety markings increase the risk of injury to persons.

- Clean dirty safety signs.
- Replace damaged and illegible safety signs immediately.

2.3 Intended use

2.4 Foreseeable misuse

The appliance is not suitable for direct temperature control of foodstuffs and luxury foods or pharmaceutical and medical products.

The appliance is not suitable for use in a potentially explosive environment.

The appliance is not suitable for use in a corrosive or aggressive environment.

The device is not intended for use in residential areas. Interference to radio reception may occur.

2.5 Safety markings

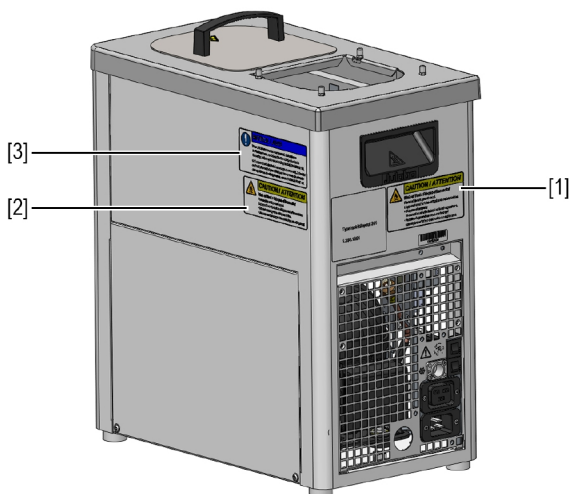
The following safety labels are affixed to the appliance.

Symbol	Symbol Description	Location
	Warning of a danger zone. Observe operating instructions.	Rear of appliance
	Read the operating instructions before switching on.	Rear of appliance
	Warning of hot surface	Condenser
	Warning of cold surface	Rear of appliance
	Warning of flammable refrigerant	Type plate

2.6 Attaching the safety label

The following section only applies to appliances with natural refrigerants that are operated in the USA or Canada.

After unpacking the appliance, affix the enclosed safety stickers in the places shown.



	CAUTION / ATTENTION
	Risk of fire! / Risque d'incendie! Flammable refrigerant used. <i>L'appareil contient des réfrigérants inflammables.</i> • Dispose of property in accordance with federal or local regulations. • <i>Installez l'appareil en vous conformant aux réglementations nationales ou régionales.</i>

Safety label (order no.: 3.383.2600)

	NOTICE / AVIS
	This unit is intended for commercial, industrial or institutional use, as defined in the safety standards for refrigeration systems according to ANSI/ASHRAE 15. <i>Cet appareil est destiné à un usage commercial, industriel ou institutionnel tel que défini par les normes de sécurité des systèmes de réfrigération, selon ANSI/ASHRAE 15.</i>

Notice (order no. 3.383.2640)

	CAUTION / ATTENTION
	Risk of fire! / Risque d'incendie! Flammable refrigerant used. <i>L'appareil contient des réfrigérants inflammables.</i> • Do not damage the refrigerant line. • <i>Ne pas endommager les conduites du réfrigérant.</i>

Safety label (order no. 3.383.2630)

2.7 Refrigerant

In the event of a leak in the refrigerant cycle, a certain volume per kg of refrigerant is prescribed at the installation site for safety reasons to prevent the formation of an ignitable mixture of refrigerant and air. The refrigerant charge is specified on the rating plate.



WARNING

Leakage of flammable refrigerant!

The appliance contains flammable refrigerant in a technically permanently sealed circuit. In the event of a leak in the refrigerant circuit, a flammable concentration may form in the air, which may ignite or explode due to potential ignition sources in the vicinity. This can lead to serious injury or death.

- Observe the prescribed minimum room size for operating the appliance.
- Only use the appliance in well-ventilated rooms.
- Avoid ignition sources in the immediate vicinity of the appliance (e.g. electrical switches, hot surfaces, naked flames).
- Do not damage refrigerant lines.
- Do not damage the fins of the condenser.
- In the event of a refrigerant leak, switch off the appliance immediately, keep open flames and ignition sources away, ventilate the room well and contact JULABO Service.



CAUTION

Refrigerants are harmful to health!

Refrigerants and their vapors are harmful to health. There is a risk of suffocation in enclosed spaces.

- Avoid contact and inhalation.
- Damage to the refrigerant cycle may only be repaired by JULABO service technicians or qualified specialist personnel.
- If refrigerant leaks, switch off the appliance immediately and ventilate the room well.

For 0.008 kg of R-290 refrigerant, 1 m³ of space must be provided or a room volume of 125 m³ is required for 1 kg of R-290 refrigerant.

1 m³ of space must be provided for 0.008 kg of R-1270 refrigerant or a room volume of 125 m³ is required for 1 kg of R-1270 refrigerant.

The calculation/assessment, whether **one or more** refrigeration systems per room, **always** remains **the same**, as it can be assumed that several leaks are **not** causally connected or that consequential faults occur.

2.8 Protective devices

Technical safety devices ensure safe operation. If a safety device is triggered, the operator is warned by a message on the display and an acoustic signal.

High pressure switch

A pressure switch triggers when the condensing pressure reaches a defined value. The appliance switches off the pump, heater and chiller. A continuous signal tone sounds. A warning message appears on the display of the connected thermostat. The cause must be determined and rectified.

Intrinsically safe appliances do not have a high pressure switch.

3 Technical data

Performance data measured according to DIN12876. Performance specifications apply at an ambient temperature of 20 °C.

The cooling capacity up to 20 °C was measured with ethanol, above 20 °C with thermal oil and may deviate with other temperature control media.

Group classification of the device according to CISPR 11:

- The device is a Group 1, Class A ISM device that uses radio frequency for internal purposes
- Class A: Use in an industrial electromagnetic environment

The device is designed for safe operation under the following environmental conditions according to IEC 61010-1:

- Indoor use
- Altitude up to 2000 m NHN
- Ambient temperature +5 ... +40 °C (unless otherwise specified in the technical data)
- Maximum relative humidity 80 % at air temperatures up to 31 °C, decreasing linearly up to 50 % relative humidity at 40 °C
- Pollution degree 2
- Overvoltage category II



NOTE

The maximum transport temperature is +70 °C.



NOTE

The technical data for the respective device combinations can be found in the operating instructions for the associated circulator.

3.1 200F

Temperature data		
Lowest temperature	°C	-20

Dimensions and weight		
Body dimensions (W x D x H)	cm	23 x 39 x 44
Usable bath opening (W x D)	cm	13 x 15
Bath depth	cm	15
Volume min. ... max.	l	3.0 ... 4.0
Weight	kg	23.0

Electrical connection data				
Mains connection	V Hz	100 50/60	115 60	230 50/60
Current consumption nominal	A	4	4	2
Total current consumption	A	15	12	16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	10	10	10

3.2 201F

Temperature data

Lowest temperature	°C	-20
--------------------	----	-----

Dimensions and weight

Body dimensions (W x D x H)	cm	44 x 41 x 22
Usable bath opening (W x D)	cm	13 x 15
Bath depth	cm	15
Volume min. ... max.	l	3.0 ... 4.0
Weight	kg	23.6

Electrical connection data

Mains connection	V Hz	100 50/60	115 60	230 50/60
Current consumption nominal	A	4	3	2
Total current consumption	A	15	12	16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	10	10	10

3.3 300F

Temperature data		
Lowest temperature	°C	-25

Dimensions and weight		
Body dimensions (W x D x H)	cm	24 x 43 x 66
Usable bath opening (W x D)	cm	13 x 15
Bath depth	cm	15
Volume min. ... max.	l	3.0 ... 4.0
Weight	kg	28.0

Electrical connection data					
Mains connection	V Hz	100 50/60	115 60	230 50/60	208 ... 230 50/60
Nominal current consumption	A	5	4	2	2 (208 V) 2 (230 V)
Total current consumption	A	15	12	16	16
- Switzerland	A			10	
- Great Britain	A			13	
Mains fuse, resettable	A	10	10	10	10

3.4 301F

Temperature data

Lowest temperature	°C	-30
--------------------	----	-----

Dimensions and weight

Body dimensions (W x D x H)	cm	23 x 40 x 43
Usable bath opening (W x D)	cm	13 x 15
Bath depth	cm	15
Volume min. ... max.	l	3.0 ... 4.0
Weight	kg	23.0

Electrical connection data

Mains connection	V Hz	100 50/60	115 60	208 ... 230 50/60
Nominal current consumption	A	4	4	2 (208 V) 2 (230 V)
Total current consumption	A	15	12	16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	10	10	10

3.5 449F

Temperature data

Lowest temperature	°C	-32
--------------------	----	-----

Dimensions and weight

Body dimensions (W x D x H)	cm	37 x 59 x 47
Usable bath opening (W x D)	cm	28 x 35
Bath depth	cm	20
Volume min. ... max.	l	18.0 ... 26.0 / 20.0 ... 26.0
max. weight	kg	36.7

Electrical connection data

Mains connection	V Hz	100 ... 230 50/60
Nominal current consumption	A	5 (100 V) 3 (230 V)
Total current consumption	A	max. 16
- Switzerland	A	10
- Great Britain	A	13
Mains fuse, resettable	A	10

3.6 450F

Temperature data

Lowest temperature	°C	-30
Ambient temperature	°C	+5 ... +35

Dimensions and weight

Body dimensions (W x D x H)	cm	23 x 40 x 43
Usable bath opening (W x D)	cm	13 x 15
Bath depth	cm	15
Volume min. ... max.	l	3.0 ... 4.0
Weight	kg	23.0

Electrical connection data

Mains connection	V Hz	100 50/60	115 60	200 ... 230 50/60
Nominal current consumption	A	4	5	3 (200 V) 3 (230 V)
Total current consumption	A	15	12	16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	10	10	10

3.7 600F

Temperature data

Lowest temperature	°C	-35
--------------------	----	-----

Dimensions and weight

Body dimensions (W x D x H)	cm	33 x 47 x 47
Usable bath opening (W x D)	cm	22 x 15
Bath depth	cm	15
Volume min. ... max.	l	5.0 ... 7.5
Weight	kg	32.4

Electrical connection data

Mains connection	V Hz	100 50/60	115 60	200 ... 230 50/60
Nominal current consumption	A	11	7	3 (200 V) 4 (230 V)
Total current consumption	A	15	12	16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	12	12	10

3.8 601F

Temperature data

Lowest temperature	°C	-35/-40*
--------------------	----	----------

* depending on the circulator used

Dimensions and weight

Body dimensions (W x D x H)	cm	33 x 46 x 52
Usable bath opening (W x D)	cm	22 x 15
Bath depth	cm	20
Volume min. ... max.	l	8.0 ... 10.0
Weight	kg	36.0

Electrical connection data

Mains connection	V Hz	100 50/60	115 60	200 ... 230 50/60
Nominal current consumption	A	11	7	3 (200 V) 4 (230 V)
Total current consumption	A	15	12	16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	12	12	10

3.9 800F

Temperature data		
Lowest temperature	°C	-40

Dimensions and weight		
Body dimensions (W x D x H)	cm	33 x 48 x 70
Usable bath opening (W x D)	cm	18 x 13
Bath depth	cm	15
Volume min. ... max.	l	5.0 ... 7.5
Weight	kg	38.0

Electrical connection data				
Mains connection	V Hz	100 50/60	115 60	200 ... 230 50/60
Nominal current consumption	A	6	5	4 (200 V) 3 (230 V)
Total current consumption	A	15	12	max. 16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	10	10	10

3.10 1000F

Temperature data

Lowest temperature	°C	-40/-50*
--------------------	----	----------

* depending on the circulator used

Dimensions and weight

Body dimensions (W x D x H)	cm	42 x 49 x 51
Usable bath opening (W x D)	cm	18 x 13
Bath depth	cm	15
Volume min. ... max.	l	5.0 ... 7.5
Weight	kg	50.0

Electrical connection data

Mains connection	V Hz	115 60	200 ... 230 50/60
Nominal current consumption	A	9	6 (200 V) 6 (230 V)
Total current consumption	A	16	16
- Switzerland	A		10
- Great Britain	A		13
Mains fuse, resettable	A	14	10

3.11 1001F

Temperature data

Lowest temperature	°C	-38
--------------------	----	-----

Dimensions and weight

Body dimensions (W x D x H)	cm	45 x 64 x 74
Usable bath opening (W x D)	cm	35 x 41
Bath depth	cm	30
Volume min. ... max.	l	42.0 ... 56.0
Weight	kg	70.7

Electrical connection data

Mains connection	V Hz	200 ... 230 50/60
Nominal current consumption	A	5 (200 V) 5 (230 V)
Total current consumption	A	16
- Switzerland	A	10
- Great Britain	A	13
Mains fuse, resettable	A	10

3.12 1200F

Temperature data

Lowest temperature	°C	-40/-50*
--------------------	----	----------

* depending on the circulator used

Dimensions and weight

Body dimensions (W x D x H)	cm	33 x 48 x 70
Usable bath opening (W x D)	cm	18 x 13
Bath depth	cm	15
Volume min. ... max.	l	5.0 ... 7.5
Weight	kg	38.0

Electrical connection data

Mains connection	V Hz	100 50/60	115 50/60	200 ... 230 50/60
Nominal current consumption	A	9	4	4
Total current consumption	A	15	12	max. 16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	10	10	10

3.13 1201F

Temperature data

Lowest temperature	°C	-40*
--------------------	----	------

* At operating temperatures below -20°C, icing may occur on the evaporator in combination with silicone oil.

Dimensions and weight

Body dimensions (W x D x H)	cm	45 x 64 x 77
Usable bath opening (W x D)	cm	35 x 41
Bath depth	cm	30
Volume min. ... max.	l	42 ... 56
Weight	kg	74.0

Electrical connection data

Mains connection	V Hz	100 50/60	115 50/60	200 ... 230 50/60
Nominal current consumption	A	9	4	4
Total current consumption	A	15	12	max. 16
- Switzerland	A			10
- Great Britain	A			13
Mains fuse, resettable	A	10	10	10

3.14 1800F

Temperature data

Lowest temperature	°C	-50
--------------------	----	-----

Dimensions and weight

Body dimensions (W x D x H)	cm	40 x 50 x 67
Usable bath opening (W x D)	cm	18 x 13
Bath depth	cm	20
Volume min. ... max.	l	6.5 ... 11.0
Weight	kg	55.0

Electrical connection data

Mains connection	V Hz	200 ... 230 50/60
Nominal current consumption	A	
Total current consumption	A	16
- Switzerland	A	
- Great Britain	A	
Mains fuse, resettable	A	10

3.15 2500F

Temperature data

Lowest temperature	°C	-50
--------------------	----	-----

Dimensions and weight

Body dimensions (W x D x H)	cm	40 x 50 x 67
Usable bath opening (W x D)	cm	18 x 13
Bath depth	cm	20
Volume min. ... max.	l	6.5 ... 11.0
Weight	kg	55.0

Electrical connection data

Mains connection	V Hz	200 ... 230 50/60
Nominal current consumption	A	
Total current consumption	A	16
- Switzerland	A	
- Great Britain	A	
Mains fuse, resettable	A	10

3.16 Materials and media compatibility

3.16.1 Materials of the parts in contact with the medium

The following table lists the materials that can come into contact with the heat transfer fluid.

The information can be used to check compatibility with the heat transfer fluid used.

- 1.4301 / 304 / S30400
- FPM / FKM 75

4 Structure and function

4.1 Functional description

The cooling machine is combined with a circulator to form a refrigerated circulator. The appliance combination can precisely cool and heat temperature-controlled products over a wide temperature range.

The appliance combination is suitable for external temperature control tasks. The cooling machine is controlled by the connected circulator.

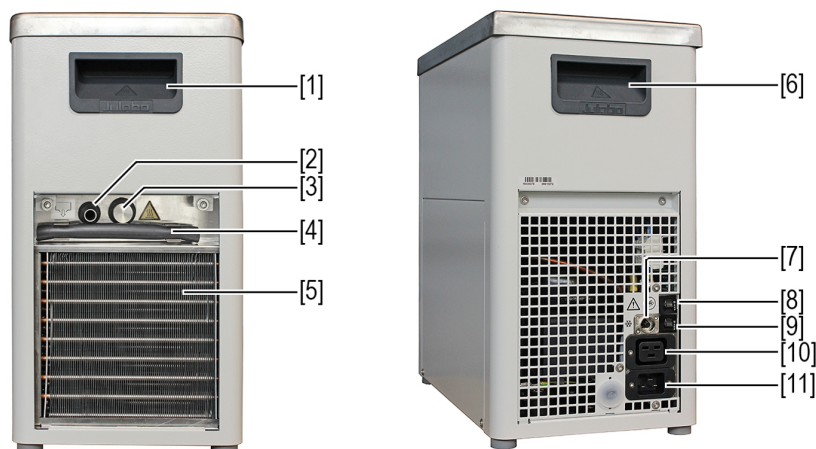
4.2 Combination options with circulators

The table lists which cooling machine can be combined with which circulator.

Cooling machine	Circulators				
	CORIO CD	CORIO CP	DYNEO DD	MAGIO MS	MAGIO MX
200F	✓	✓	✓	-	-
201F	✓	✓	✓	-	-
300F	✓	✓	✓	-	-
310F	✓	✓	✓	✓	-
449F	✓	✓	✓	✓	-
450F	✓	✓	✓	✓	-
600F	✓	✓	✓	✓	-
601F	✓	✓	✓	✓	-
800F	✓	✓	✓	✓	-
1000F	✓	✓	✓	✓	-
1001F	✓	✓	✓	-	-
1200F	✓	✓	✓	✓	-
1201F	✓	✓	✓	-	-
1800F	-	-	-	-	✓
2500F	-	-	-	-	✓

4.3 Operating and functional elements

This chapter describes the operating and functional elements and shows their position on the device.

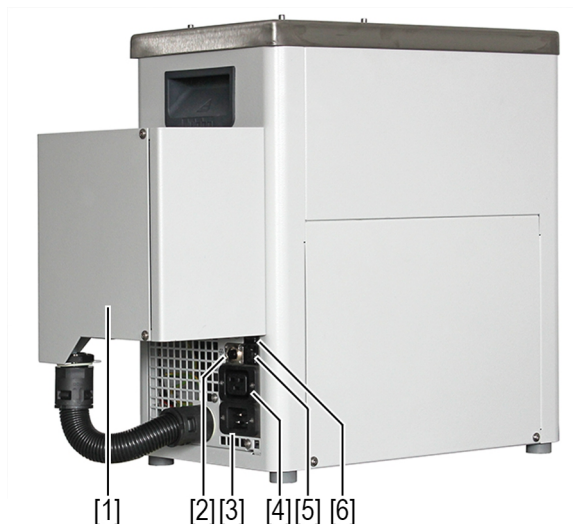


Front (without cover) and rear (e.g. 310F)

1. Recessed grip
2. Bath drain opening
3. Drain valve
4. Drain hose (for 310F and 450F)
5. Condenser
6. Recessed grip
7. CAN socket for connection to circulators
8. Mains fuse, resettable
9. Mains fuse, resettable
10. Circulator mains output socket
11. Mains input socket

4.4 External inverter

For the 100 V voltage version of 310F and 450F, the inverter is located at the rear.



Rear 310F/450F (100 V voltage variant)

1. Inverter
2. CAN socket for connection to circulator
3. Mains input socket
4. Mains output socket Circulator
5. Mains fuse
6. Mains fuse

5 Transportation



CAUTION

Risk of crushing due to falling appliance!

An unsecured appliance can fall down and cause crushing injuries if transported incorrectly.

- Secure the appliance against tipping and falling during transportation.
- Secure loose parts against falling during transportation.
- Transport the appliance in an upright position using a suitable means of transportation.
- Wear safety shoes.



CAUTION

Risk of injury due to appliance tipping over!

The filled appliance can tip over during transportation.

- Drain the heat transfer fluid before transport.

Prerequisites

- ▶ The appliance is switched off and disconnected from the mains.
- ▶ The heat transfer fluid has been drained.
- ▶ All external connections have been removed.

Procedure

1. Use the recessed grips to lift the cooling machine onto the center of the transport trolley - using two people if necessary.
 - ⇒ See technical data for weight specifications.
 2. Secure the cooling machine with straps on the transport trolley to prevent it from tipping over.
 3. Place loose parts, e.g. cables, to the appliance on the transport trolley.
- ✓ The appliance is ready for transportation and can be transported safely to its installation location.

6 Set up

6.1 Set up the device at the place of operation

Prerequisites

- ▶ The device has been transported to the place of operation.
- ▶ The size and infrastructure of the place of operation are suitable for operating the device.

! NOTE Recommended minimum distance of 1 m from neighboring devices to avoid electromagnetic interference.

Procedure

1. Set up the appliance on a flat, smooth, non-flammable surface.

! NOTE

- Ensure that the appliance stands securely.
- Leave at least 20 cm of free space in front of and behind the appliance.
- All ventilation openings in the casing must not be covered.
- The refrigerant cycle must not be damaged.
- At high temperatures, gases may be produced depending on the heat transfer fluid. Extraction may be necessary under certain circumstances.

- ✓ The appliance is installed at the place of operation.

7 Commissioning

7.1 Operation of appliances with frequency converters

The 449F, 800F, 1200F, 1800F and 2500F appliances are fitted with frequency converters. In rare cases, the operation of these appliances with frequency converters may cause the RCD or residual current circuit breaker to trip. This is particularly the case if several devices with frequency converters are operated on one RCD.

If, for example, a three-pole RCD is used, it is advisable to distribute the devices evenly across the three phases. Ideally, each appliance should be protected by its own RCD (RCBO or RCD/LCB). To ensure adequate protection against residual currents, it is also recommended that the appliances are operated in circuits that are protected by an RCD or RCD circuit breaker of type F or higher.

At present, it is not yet possible to operate the devices with frequency converters on the RCDs with a tripping current of 5 mA (so-called GFCIs) that are sometimes used in the USA, as these react very sensitively to the high-frequency leakage currents caused by frequency converters.

8

Cleaning and maintenance

8.1

Maintenance intervals

The table lists the regular maintenance work according to their maintenance intervals. The specified maintenance intervals refer to single-shift operation. The times given are approximate values.

Interval	Activity	Qualification	Duration [min]
Every 2 years	Check safety markings	Operator	1
As required	Clean condenser	Operator	5



NOTE

For the JULABO maintenance and service offer, contact JULABO sales or service.

8.2

Checking the safety markings

The following section only applies to appliances with natural refrigerants that are operated in the USA or Canada.

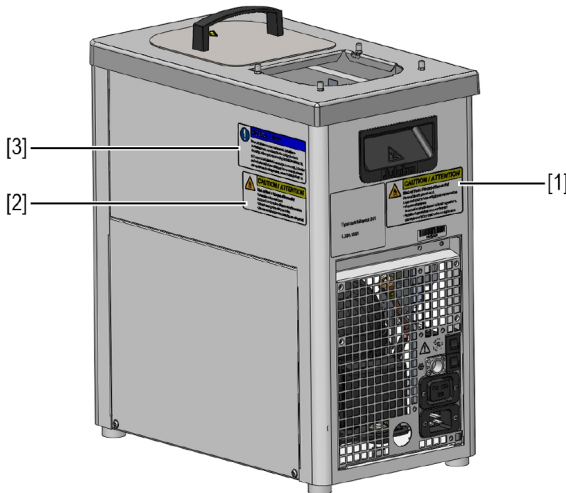
The safety markings on the appliance must be clearly legible at all times. Their condition must be checked every two years.

Procedure

1. Check the safety markings on the appliance for legibility and completeness.
2. Replace defective or missing safety labels.

! NOTE Safety labels can be reordered from JULABO.

✓ The safety labels on the device have been checked.



	CAUTION / ATTENTION
Risk of fire! / Risque d'incendie! Flammable refrigerant used. <i>L'appareil contient des réfrigérants inflammables.</i> • Dispose of properly in accordance with federal or local regulations. • <i>Installez l'appareil en vous conformant aux réglementations nationales ou régionales.</i>	

Safety label (order no.: 3.383.2600)



NOTICE / AVIS

This unit is intended for commercial, industrial or institutional use, as defined in the safety standards for refrigeration systems according to ANSI/ASHRAE 15.

Cet appareil est destiné à un usage commercial, industriel ou institutionnel tel que défini par les normes de sécurité des systèmes de réfrigération, selon ANSI/ASHRAE 15.

Notice (order no. 3.383.2640)



CAUTION / ATTENTION

Risk of fire! / Risque d'incendie!
 Flammable refrigerant used.
L'appareil contient des réfrigérants inflammables.

- Do not damage the refrigerant line.
- *Ne pas endommager les conduites du réfrigérant.*

Safety label (order no. 3.383.2630)

8.3 Replacing the detachable power cable

The appliance is equipped with a detachable mains cable.



NOTE

The appliance may only be operated with the mains cable supplied. If the mains cable needs to be replaced due to a defect, it can be reordered.

Order number	Designation
7.901.2655	EU mains cable, 200-230 V
7.901.2701	Mains cable CH, 200-230 V
7.901.2665	Mains cable CN, 230 V
7.901.2657	Mains cable GB, 200-230 V
7.901.2656	Mains cable US, 100-115 V

8.4 Emptying the appliance

If the appliance is to be sent in for technical service or disposed of properly, it must be completely drained.

The appliance should always be completely emptied before it is taken out of service for any length of time and when the external application is changed.



CAUTION

Risk of scalding from hot heat transfer fluid!

The heat transfer fluid can become very hot during the temperature control process. Contact with hot heat transfer fluid can lead to scalding.

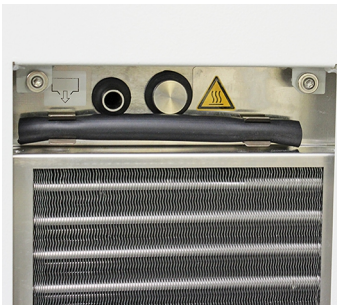
- Allow the appliance to cool down to room temperature before emptying.
- Avoid direct contact with hot heat transfer fluid
- Wear protective gloves.

Prerequisites

- ▶ The device is switched off.
- ▶ The appliance is at room temperature.
- ▶ A sufficiently large collection container is available under the drain of the appliance.

Procedure

1. Remove the bath cover.
2. 310F and 450F: Remove the hose and attach it to the drain valve.



3. Open the drain valve.
 - ⇒ The temperature control fluid flows into the collecting vessel provided.

4. When the appliance is completely empty, close the bath tank.
 5. Close the drain valve.
- ✓ The appliance is drained.

8.5 Cleaning the appliance

The outside of the device should be cleaned at regular intervals. Before using a cleaning or decontamination method other than that recommended by JULABO, consult JULABO to ensure that the intended method will not damage the device.



NOTE

Damage to the electronics due to water ingress!

Water ingress can damage the electronics of the appliance and cause it to fail.

- Only clean the outside of the appliance with a damp cloth.
- Prevent water from entering the appliance .

Requirements

- ▶ Lint-free cloth
- ▶ Mild cleaning agent
- ▶ The appliance is switched off.
- ▶ The appliance is disconnected from the power supply.

Procedure

1. Allow the appliance to cool down to room temperature.
2. Clean the surface of the appliance with a damp cloth.

! NOTE You can use a little washing-up liquid for cleaning. If in doubt, ask Technical Service for alternative cleaning agents.

- ✓ The appliance is cleaned.

8.6 Cleaning the condenser

The condenser at the front of the appliance should be cleaned from time to time in order to maintain full cooling capacity.



WARNING

Leakage of flammable refrigerant!

The appliance contains flammable refrigerant in a technically permanently sealed circuit. In the event of a leak in the refrigerant circuit, a flammable concentration may form in the air, which may ignite or explode due to potential ignition sources in the vicinity. This can lead to serious injury or death.

- Observe the prescribed minimum room size for operating the appliance.
- Only use the appliance in well-ventilated rooms.
- Avoid ignition sources in the immediate vicinity of the appliance (e.g. electrical switches, hot surfaces, naked flames).
- Do not damage refrigerant lines.
- Do not damage the fins of the condenser.
- In the event of a refrigerant leak, switch off the appliance immediately, keep open flames and ignition sources away, ventilate the room well and contact JULABO Service.

Prerequisites

- ▶ The appliance is switched off.
- ▶ The appliance is disconnected from the power supply.
- ▶ The appliance has cooled down to room temperature.

Procedure

1. Remove the ventilation grille from the front of the appliance.



2. Carefully vacuum the dirt from the condenser with a vacuum cleaner.

⚠ CAUTION Take care not to damage the fins of the condenser.



3. Replace the ventilation grille.
- ✓ The condenser has been cleaned.

8.7 Taking the device out of operation and storing it

If an appliance is not to be used for a longer period of time or is to be sent to the Technical Service for repairs, for example, it is taken out of operation. The procedure described must be followed to ensure that it continues to function reliably after a longer period of storage.

Prerequisites

- The appliance is switched off and disconnected from the power supply.

Procedure

1. Empty the appliance completely (see **Emptying the appliance**).
 2. Drain the heat transfer fluid completely.
 3. Clean the inside and outside of the appliance.
 4. Remove all residues of the cleaning fluid from the pipe system (e.g. with compressed air).
 5. Close all connections and drain valves.
 6. Store the appliance in a sufficiently ventilated, dust-free, dry and frost-free location. Avoid corrosive and aggressive environments.
- ✓ The appliance is protected and stored safely. It can be put back into operation if required.

8.8 Sending in the device

In the event of faults on the appliance that the operator cannot rectify himself, contact Technical Service.



NOTE

Observe the following before shipping:

- Drain the appliance completely (heat transfer fluid, refrigerant).
- Clean and decontaminate the appliance properly to prevent any risk to service personnel.
- Close all connections tightly with nuts and sealing caps.
- Carefully pack the appliance to protect it from damage.
- Mark the packaging so that the device can be transported upright.
- Complete the online return form at <https://julabo.us/contact-us/product-returns/>.



NOTE

For safe return transportation to JULABO, use the original packaging if possible.

Shipping address

JULABO USA, Inc.

884 Marcon Boulevard

Allentown, PA 18109

Phone: +1(610) 231-0250

info@julabo.us

www.julabo.us

8.9 Warranty

The following warranty terms apply to products sold in North America by JULABO ("Seller") to the entity identified as the buyer ("Buyer") on the Seller's invoice.

Initial Warranty

Upon Seller's receipt of full payment for the Products, and subject to Buyer's compliance with the Terms of Sale and all other agreements with Seller with respect to the Products, Seller warrants to Buyer that the Products manufactured by Seller will be free from defects in materials and workmanship for a period not to exceed two (2) years of operation from the date the Product was shipped by Seller to Buyer (the "Initial Warranty").

EXCLUSION OF ALL OTHER EXPRESS WARRANTIES; EXCLUSION OF ALL IMPLIED WARRANTIES

OTHER THAN THE INITIAL WARRANTY, NO OTHER EXPRESS WARRANTIES ARE GIVEN. ALL IMPLIED WARRANTIES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE EXCLUDED IN ALL RESPECTS AND FOR ALL PURPOSES. SELLER DISCLAIMS AND MAKES NO IMPLIED WARRANTIES OF ANY KIND.

Exclusions

The initial warranty does not cover damage to the product resulting from accident, misuse, improper installation or operation, unauthorized or improper repair, replacement or alteration (including, but not limited to, repair, replacement or alteration performed by anyone other than Seller's employees or authorized representatives), failure to perform (or improper performance of) maintenance, unreasonable or unintended use or misuse of the product, or failure to follow written installation or operating instructions.

Buyer must return proof of purchase of the Product to Seller or one of its authorized representatives within thirty (30) days of the date the Product was shipped to Buyer by Seller in order to make a claim under the Initial Warranty. Notwithstanding anything to the contrary herein, all glassware, including but not limited to reference thermometers, is expressly excluded from the Initial Warranty.

Buyer's Exclusive Remedies; Seller's Limitations of Liability

Buyer's sole and exclusive remedy under the Initial Warranty shall be limited, at Seller's sole discretion, to either: (i) repair of defective parts; or (ii) replacement of defective parts. In either case, the warranty period for the product receiving a repaired or replaced part under the terms of the original warranty will not be extended. Any repairs or replacements made by Seller under this warranty shall be made at one of Seller's facilities in Allentown, Pennsylvania, U.S.A., or at the facility of an authorized representative of Seller, which location shall be determined by Seller in its sole discretion; provided, however, that Seller may, at its option, make such repairs or replacements at Buyer's facility, in which case Buyer shall be responsible for travel, living and other expenses incurred by Seller in making such repairs or replacements at Buyer's facility. As a condition precedent to Seller's obligation to repair or replace any Product part under the Initial Warranty, Buyer shall (i) promptly notify Seller in writing of any such defect; (ii) return the proof of purchase of the Product to Seller or Seller's authorized representatives within thirty (30) days from the date the Product was shipped by Seller; and (iii) assist Seller in all respects in its attempts to determine the legitimacy and basis of any claim made by or on behalf of Buyer, including, but not limited to, granting Seller access to the Product to verify the operating conditions. If Buyer fails to notify Seller in writing within the Initial Warranty Period or fails to return the proof of purchase of the Product as described above, Seller shall have no further liability or obligation to Buyer therefor. In no event shall Seller's liability under the Initial Warranty exceed the original purchase price of the Product that is the subject of the alleged defect.

THE REMEDIES PROVIDED IN THE ORIGINAL WARRANTY ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE TO BUYER. NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED HEREIN, AND EVEN IF THE SOLE AND EXCLUSIVE REMEDIES FAIL OF THEIR ESSENTIAL PURPOSE FOR ANY REASON, IN NO EVENT SHALL SELLER BE LIABLE FOR BUYER'S MANUFACTURING COSTS, LOST PROFITS, GOODWILL OR OTHER SPECIAL, INDIRECT, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES TO BUYER OR ANY THIRD PARTY, AND ALL SUCH DAMAGES ARE HEREBY DISCLAIMED.

Assignment

Buyer may not assign its rights or obligations hereunder without Seller's prior written consent; provided, however, that if Buyer is a distributor of Seller, Buyer's rights and obligations under these warranty terms shall inure to the benefit of and be binding upon Buyer's customers upon presentation to Seller of proof of purchase of the Product in accordance with the terms set forth herein. The Seller shall be entitled to assign its rights and obligations hereunder in whole or in part without the prior consent of the Buyer.

Governing Law

The warranty provisions and all questions relating to their validity, interpretation, performance and enforcement shall be construed in accordance with and governed by the substantive laws of the Commonwealth of Pennsylvania, without regard to principles of conflict of laws.

Waiver

Seller's failure to insist upon strict compliance with the terms of this warranty shall not constitute a waiver of such right. No claim or right arising out of any breach of warranty by Buyer may be waived in whole or in part by a waiver of the claim or right unless the waiver is in writing and signed by an authorized representative of Seller. Seller's waiver or acceptance by Buyer of any breach of any provision of the Warranty shall not constitute a waiver or excuse for failure to comply with any other provision of the Warranty or for any prior or subsequent breach of the same provision.

Freight

Seller shall arrange and pay for the cost of returning the device to Buyer.

Out of Box Failure (OBF)

Out of Box Failure (OBF) is defined as a product failure immediately after unpacking and installation of a newly delivered product. JULABO grants a 14-day grace period after the date of shipment within which the delivered product must be checked for defects. The same exclusions apply to the OBF classification as to the regular warranty. For example, JULABO is not liable for transport damage, damage caused by the customer or third parties, or for defects caused by improper installation or use.

9 Disposal

Observe the applicable country-specific guidelines when disposing of the appliance.



This symbol on the product or its packaging indicates that it must not be disposed of with household waste.

Proper disposal avoids negative effects on people and the environment and allows valuable raw materials to be reused.

Information on collection points for old appliances can be obtained from the city or municipality or an authorized disposal company.



CAUTION

Leakage of flammable refrigerant!

If flammable refrigerant escapes, there is a risk of fire and explosion.

- Do not open the refrigerant circuit.
- Have the appliance disposed of by a certified company in accordance with national or regional regulations.

