

**Julabo**  
THE TEMPERATURE CONTROL COMPANY

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**CORIO™**

Refrigerated and Heating Circulators



ENGLISH



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# The CORIO advantages at a glance.



## Brilliant.

Bright display with clear illumination can be read easily from a long distance.



## Switch on. And off you go.

Intelligent operating concept. Ready for operation with just a few quick and easy steps.



## Timer. Integrated.

CORIO circulators include an integrated timer function. When the set time has elapsed, a signal sounds and the device switches off. Setting range: 0 ... 999 minutes.



## Everything at the front.

All operating controls and safety functions are accessed easily and comfortably from the front.



## Internal. External.

The pump is controlled via a lever located directly below the display. Easily change between internal and external circulation.



## Touching permitted.

Maximum safety. The ergonomic plastic handle protects your fingers from hot surfaces.



## Connectivity.

Remote control made easy. CORIO CD and CP circulators feature a USB connection and/or RS232 interface (depending on model).



## More bath.

Designed for more comfort. Thanks to the recessed cooling coil, the internal bath provides more space.



## Space saving. Free up space.

Place your CORIO right next to an application, another unit, or wall. That saves space. This is made possible positioning vents and connections only on the front and rear sides.



## Handle with ease.

Makes day-to-day work easy. Comfortably move your CORIO around by using the ergonomic handles (front and rear).





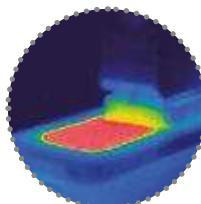
### Safety.

CORIO CD and CP complies with Class III (FL), CORIO C complies with Class I (NFL) according to DIN 12876-1. The models switch off automatically in case of high temperature or low liquid level alarm.



### Early warning system for low liquid level.

Maximum safety for your application. Optical and audible alarm allows user to refill bath fluid in time (CORIO CP).



### Solid.

Minimized energy loss through high-quality insulation.



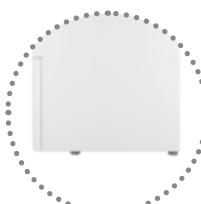
### Mobile.

Extra easy handling. Integrated castors for easy repositioning of refrigerated circulators (600F, 601F, 900F, 1000F, 1001F).



### Condensation protection.

Superb design solution. Integrated ventilation directs air over the bath lid and minimizes condensation.



### Stable.

Rubber feet allow for a secured footing of your CORIO to prevent damage to your laboratory equipment.



### Powerful. Adjustable.

- Strong pump capacity, infinitely adjustable (CORIO CP).



### ATC.

Absolute Temperature Calibration.



### Exact.

You can rely on it. PID1 control and 'Active Cooling Control' make the new CORIO precise and perfect.



### Locked in.

The lockable power plug guarantees safe connection. More process safety.



### Tidy.

The special drain tap for easy draining of bath fluids without tools.



### Connection. Easy.

Inclined pump connections (M16x1) facilitate the connection of applications. Each unit includes 2 barbed fittings of 8/12 mm diameter each.





## CORIO. The best for your laboratory!

Circulators are an important part of daily work in many laboratories of research institutions and industrial companies worldwide. The JULABO CORIO circulators were developed with pioneering technologies for these laboratories and are manufactured to the highest quality standards in Germany. With the CORIO series, we offer our customers the best price-performance ratio in the basic range of circulator technology. Equipped with all essential core functions, the CORIO circulators are optimized for simple, daily routine work.

Intelligently designed to the core. The simple and modern design of the CORIO circulators allows for easy and time-saving operation and provides quick access to all relevant functions. Thanks to the proven JULABO premium quality, all models meet the highest standards in terms of precision, reliability, and functionality. Other features such as the integrated timer or the bright, easy-to-read display complete the intelligent product design.

Flexible all-rounder.

Universal bath attachment clamp for custom containers, bath tanks in various sizes and designs as well as powerful cooling machines make the CORIO a flexible all-rounder in everyday laboratory work. With a wide selection of accessories, all CORIO devices can be adapted to customer-specific applications in a modular and individual way.

The basic model CORIO C is particularly suitable for precise, internal standard temperature control tasks. Thanks to the powerful integrated pump, the CORIO CD and CP can also be used to easily and safely control external applications – in a wide working temperature range from -50 °C to +200 °C. With additional features such as the 3-point Absolute Temperature Calibration (ATC3), the CORIO CP guarantees reliable compensation of temperature deviations even when used in larger baths. In addition, the CORIO CP can also be integrated into complex process structures thanks to the RS232 interface.

# Refrigerated Circulators



**The Refrigerated / Heating Circulators**

of the generation CORIO provide more robustness, more reliability, and more advantages. They are ideal for all standard tasks and routine work in your laboratory.



## Refrigerated Circulators

### CORIO CD Refrigerated / Heating Circulators

for working temperatures from -40 °C to +150 °C

Refrigerated / Heating Circulators of the CORIO series distinguish themselves with a great price-performance ratio. They are ideal for all standard tasks and routine work in laboratories and industry.

- Models for internal and external applications
- Bright, white, easy-to-read display
- Very quiet
- Easy change-over from internal to external circulation and vice versa
- External pump connections (M16×1)
- USB interface
- Space-saving cooling coil design provides more usable space in the bath tank
- Bath lid and drain tap included
- Removable ventilation grid
- Refrigeration unit without side vents
- Class III (FL) according to DIN 12876-1

To adapt the CORIO Refrigerated / Heating Circulator to your individual application, we offer a comprehensive range of accessories (bath fluid, tubing, adapter and more).

#### Applications

Temperature control of samples in a circulator bath or temperature control of an external application. For example measuring cells, refractometers, polarimeters, photometers, viscometers, fermenters, electrophoresis chambers, chromatography columns, rotary evaporators, rheometers and more.



#### Maintenance. Friendly.

The magnetic front grid can be removed easily for user-friendly cleaning and maintenance. Without tools.



## CORIO™ CD-200F

Order No.	9 012 701	
Working temperature range °C	-20 ... +150	
Temperature stability °C	$\pm 0.03$	
Heating capacity kW	2	
	+20 °C	0 °C
Cooling capacity kW (Bath fluid: Ethanol)	0.22 <b>-10 °C</b>	0.17 <b>-20 °C</b>
	0.13	0.06
Pump capacity l/min	bar	
Flow rate / Pressure	15	0.35
Bath opening / Bath depth cm	W × L / D 13 × 15 / 15	
Filling volume liters	3 ... 4	
Dimensions cm	W × L × H 23 × 39 × 65	



## CORIO™ CD-201F

Order No.	9 012 702	
Working temperature range °C	-20 ... +150	
Temperature stability °C	$\pm 0.03$	
Heating capacity kW	2	
	+20 °C	0 °C
Cooling capacity kW (Bath fluid: Ethanol)	0.22 <b>-10 °C</b>	0.16 <b>-20 °C</b>
	0.12	0.06
Pump capacity l/min	bar	
Flow rate / Pressure	15	0.35
Bath opening / Bath depth cm	W × L / D 13 × 15 / 15	
Filling volume liters	3 ... 4	
Dimensions cm	W × L × H 44 × 41 × 44	

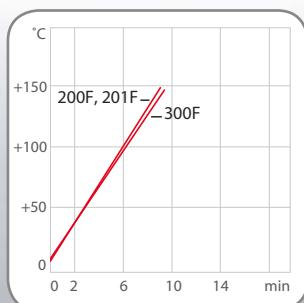


## CORIO™ CD-300F

Order No.	9 012 703	
Working temperature range °C	-25 ... +150	
Temperature stability °C	$\pm 0.03$	
Heating capacity kW	2	
	+20 °C	0 °C
Cooling capacity kW (Bath fluid: Ethanol)	0.31 <b>-10 °C</b>	0.28 <b>-20 °C</b>
	0.2	0.11
Pump capacity l/min	bar	
Flow rate / Pressure	15	0.35
Bath opening / Bath depth cm	W × L / D 13 × 15 / 15	
Filling volume liters	3 ... 4	
Dimensions cm	W × L × H 24 × 42 × 66	

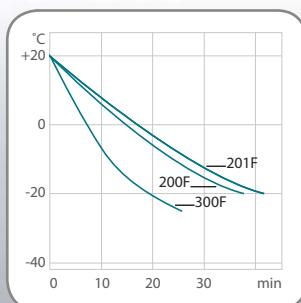
### Heat-up time

Bath fluid: Thermal

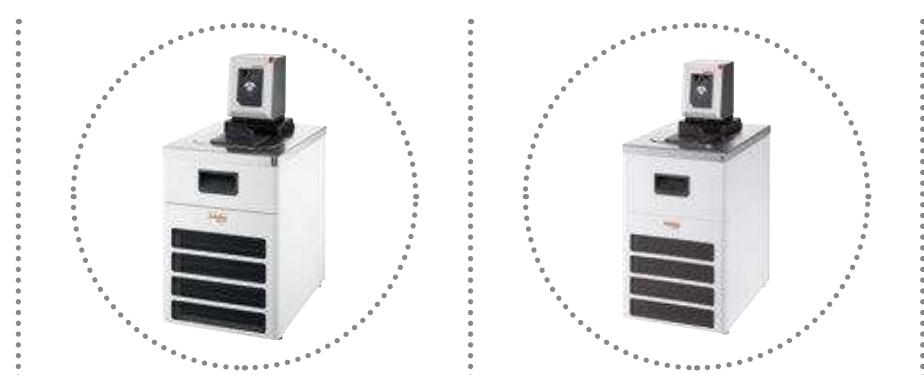


### Cool-down time

Bath fluid: Ethanol



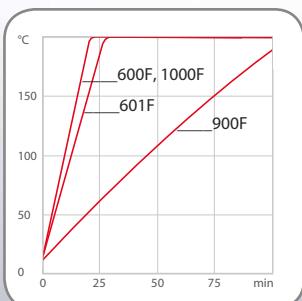
## Refrigerated Circulators



CORIO™ CD-600F			CORIO™ CD-601F		
Order No.	9 012 704		Order No.	9 012 705	
Working temperature range °C	-35 ... +150		Working temperature range °C	-40 ... +150	
Temperature stability °C	± 0.03		Temperature stability °C	± 0.03	
Heating capacity kW	2		Heating capacity kW	2	
	+20 °C	0 °C		+20 °C	0 °C
Cooling capacity kW (Bath fluid: Ethanol)	0.6	0.53	(Bath fluid: Ethanol)	0.6	0.5
	-20 °C	-30 °C		-20 °C	-30 °C
	0.35	-40 °C		0.35	-40 °C
	0.22	0.1		0.2	0.07
	-	-		0.01	-
Pump capacity l/min	bar		Pump capacity l/min	bar	
Flow rate / Pressure	15	0.35	Flow rate / Pressure	15	0.35
Bath opening / Bath depth cm	W × L / D		Bath opening / Bath depth cm	W × L / D	
	22 × 15 / 15			22 × 15 / 20	
Filling volume liters	5 ... 7.5		Filling volume liters	8 ... 10	
Dimensions cm	W × L × H		Dimensions cm	W × L × H	
	33 × 47 × 69			36 × 46 × 74	

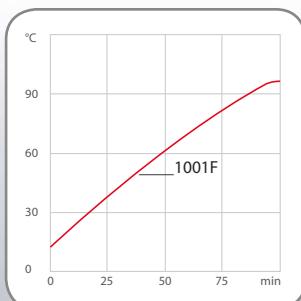
### Heat-up time

Bath fluid: Thermal



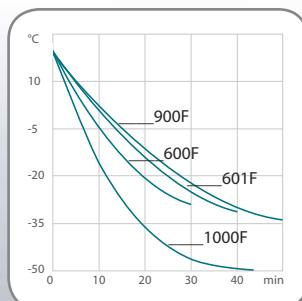
### Heat-up time

Bath fluid: Thermal



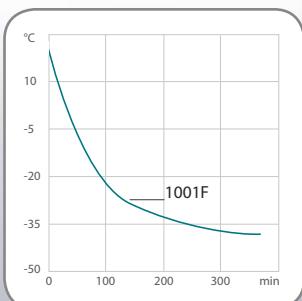
### Cool-down time

Bath fluid: Ethanol



### Cool-down time

Bath fluid: Ethanol





### CORIO™ CD-900F

Order No.	9 012 706
Working temperature range °C	-38 ... +150
Temperature stability °C	± 0.03
Heating capacity kW	2
	+20 °C    0 °C    -10 °C
Cooling capacity kW (Bath fluid: Ethanol)	0.9    0.8    0.55 -20 °C    -30 °C    -40 °C 0.35    0.15    0.02
Pump capacity l/min	bar
Flow rate / Pressure	15    0.35
Bath opening / Bath depth cm	W × L / D 26 × 35 / 20
Filling volume liters	21 ... 30
Dimensions cm	W × L × H 39 × 62 × 75

### CORIO™ CD-1000F

Order No.	9 012 707
Working temperature range °C	-40 ... +150
Temperature stability °C	± 0.03
Heating capacity kW	2
	+20 °C    0 °C    -10 °C
Cooling capacity kW (Bath fluid: Ethanol)	1    0.9    0.73 -20 °C    -30 °C    -40 °C 0.5    0.32    0.15
Pump capacity l/min	bar
Flow rate / Pressure	15    0.35
Bath opening / Bath depth cm	W × L / D 18 × 13 / 15
Filling volume liters	5 ... 7.5
Dimensions cm	W × L × H 42 × 49 × 70

### CORIO™ CD-1001F

Order No.	9 012 708
Working temperature range °C	-38 ... +100
Temperature stability °C	± 0.03
Heating capacity kW	2
	+20 °C    0 °C    -10 °C
Cooling capacity kW (Bath fluid: Ethanol)	1    0.9    0.63 -20 °C    -30 °C    -40 °C 0.35    0.13    -
Pump capacity l/min	bar
Flow rate / Pressure	15    0.35
Bath opening / Bath depth cm	W × L / D 35 × 41 / 30
Filling volume liters	42 ... 56
Dimensions cm	W × L × H 45 × 64 × 95

### Saves energy.

CORIO models come with various modes for the refrigeration unit: permanently on, permanently off, or on as refrigeration is needed. CORIO CD-600F to CORIO CD-1001 additionally contain a continuous automatic adjustment of the cooling capacity at the operating point to minimize the power consumption and the heat waste.



## Refrigerated Circulators

### CORIO CP Refrigerated / Heating Circulators

for working temperatures from -50 °C to +200 °C

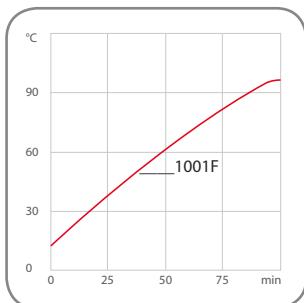
Refrigerated Circulators from the CORIO CP range are suitable for applications with a temperature range from -50°C to +200°C. The enhanced pump performance ensures they are suitable for easy temperature control tasks in combination with external applications.

- Models for internal and external applications
- Bright, white, easy-to-read display
- Very quiet
- Easy change-over from internal to external circulation and vice versa
- External pump connections (M16×1)
- pump capacity, infinitely adjustable
- USB interface
- RS232 interface
- Space-saving cooling coil design provides more usable space in the bath tank
- Bath lid and drain tap included
- Removable ventilation grid
- Refrigeration unit without side vents
- System for low liquid level
- Class III (FL) according to DIN 12876-1

To adapt the CORIO Refrigerated / Heating Circulator to your individual application, we offer a comprehensive range of accessories (bath fluid, tubing, adapter and more)

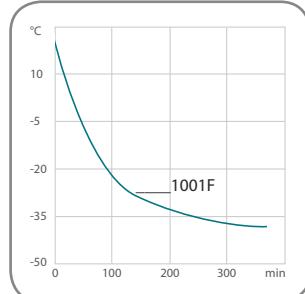
#### Heat-up time

Bath fluid: Thermal



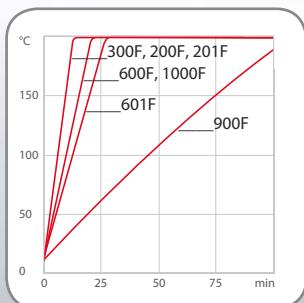
#### Cool-down time

Bath fluid: Ethanol



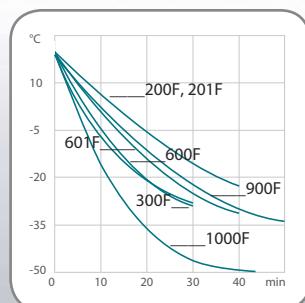
#### Heat-up time

Bath fluid: Thermal



#### Cool-down time

Bath fluid: Ethanol



### CORIO™ CP-200F NEW

Order No.	9 013 701	
Working temperature range °C	-20 ... +200	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
	+20 °C	0 °C
Cooling capacity kW (Bath fluid: Ethanol)	0.2	0.15
	-10 °C	-20 °C
	0.1	0.02
Pump capacity l/min		bar
Flow rate / Pressure	8 ... 27	0.1 ... 0.7
Bath opening / Bath depth cm	W × L / D	13 × 15 / 15
Filling volume liters	3 ... 4	
Dimensions cm	W × L × H	23 × 39 × 65



### CORIO™ CP-601F NEW

Order No.	9 013 705		
Working temperature range °C	-35 ... +200		
Temperature stability °C	± 0.03		
Heating capacity kW	2		
	+20 °C	0 °C	-10 °C
Cooling capacity kW (Bath fluid: Ethanol)	0.6	0.5	0.33
	-20 °C	-30 °C	-40 °C
	0.2	0.07	-
Pump capacity l/min		bar	
Flow rate / Pressure	8 ... 27	0.1 ... 0.7	
Bath opening / Bath depth cm	W × L / D	22 × 15 / 20	
Filling volume liters	8 ... 10		
Dimensions cm	W × L × H	36 × 46 × 74	


**CORIO™ CP-201F** NEW

<b>Order No.</b>	<b>9 013 702</b>	
Working temperature range °C	-20 ... +200	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
	<b>+20 °C</b>	<b>0 °C</b>
Cooling capacity kW (Bath fluid: Ethanol)	0.2	0.15
	<b>-10 °C</b>	<b>-20 °C</b>
	0.1	0.02
Pump capacity l/min	bar	
Flow rate / Pressure	8 ... 27	0.1 ... 0.7
Bath opening / Bath depth cm	W × L / D 13 × 15 / 15	
Filling volume liters	3 ... 4	
Dimensions cm	W × L × H 44 × 41 × 44	


**CORIO™ CP-300F** NEW

<b>Order No.</b>	<b>9 013 703</b>	
Working temperature range °C	-25 ... +200	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
	<b>+20 °C</b>	<b>0 °C</b>
Cooling capacity kW (Bath fluid: Ethanol)	0.3	0.27
	<b>-10 °C</b>	<b>-20 °C</b>
	0.19	0.08
Pump capacity l/min	bar	
Flow rate / Pressure	8 ... 27	0.1 ... 0.7
Bath opening / Bath depth cm	W × L / D 13 × 15 / 15	
Filling volume liters	3 ... 4	
Dimensions cm	W × L × H 24 × 42 × 66	


**CORIO™ CP-600F** NEW

<b>Order No.</b>	<b>9 013 704</b>	
Working temperature range °C	-35 ... +200	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
	<b>+20 °C</b>	<b>0 °C</b>
Cooling capacity kW (Bath fluid: Ethanol)	0.6	0.5
	<b>-20 °C</b>	<b>-30 °C</b>
	0.2	0.07
Pump capacity l/min	bar	
Flow rate / Pressure	8 ... 27	0.1 ... 0.7
Bath opening / Bath depth cm	W × L / D 22 × 15 / 15	
Filling volume liters	5 ... 7.5	
Dimensions cm	W × L × H 33 × 47 × 69	


**CORIO™ CP-900F** NEW

<b>Order No.</b>	<b>9 013 706</b>	
Working temperature range °C	-38 ... +200	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
	<b>+20 °C</b>	<b>0 °C</b>
Cooling capacity kW (Bath fluid: Ethanol)	0.9	0.8
	<b>-20 °C</b>	<b>-30 °C</b>
	0.31	0.11
	<b>-40 °C</b>	-
Pump capacity l/min	bar	
Flow rate / Pressure	8 ... 27	0.1 ... 0.7
Bath opening / Bath depth cm	W × L / D 26 × 35 / 20	
Filling volume liters	21 ... 30	
Dimensions cm	W × L × H 39 × 62 × 75	


**CORIO™ CP-1000F** NEW

<b>Order No.</b>	<b>9 013 707</b>	
Working temperature range °C	-50 ... +200	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
	<b>+20 °C</b>	<b>0 °C</b>
Cooling capacity kW (Bath fluid: Ethanol)	1	0.9
	<b>-20 °C</b>	<b>-30 °C</b>
	0.5	0.3
	<b>-40 °C</b>	0.13
Pump capacity l/min	bar	
Flow rate / Pressure	8 ... 27	0.1 ... 0.7
Bath opening / Bath depth cm	W × L / D 18 × 13 / 15	
Filling volume liters	5 ... 7.5	
Dimensions cm	W × L × H 42 × 49 × 70	


**CORIO™ CP-1001F** NEW

<b>Order No.</b>	<b>9 013 708</b>	
Working temperature range °C	-38 ... +100	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
	<b>+20 °C</b>	<b>0 °C</b>
Cooling capacity kW (Bath fluid: Ethanol)	1	0.9
	<b>-20 °C</b>	<b>-30 °C</b>
	0.6	0.12
Pump capacity l/min	bar	
Flow rate / Pressure	8 ... 27	0.1 ... 0.7
Bath opening / Bath depth cm	W × L / D 35 × 41 / 30	
Filling volume liters	42 ... 56	
Dimensions cm	W × L × H 45 × 64 × 95	

## Refrigerated Circulators Accessories

### JULABO Thermal Bath Fluids

JULABO Thermal bath fluids have been carefully chosen following long term testing. They are highly suitable for all of your temperature control applications guaranteeing safe and reliable operation. Choosing the proper bath fluid is critical for high performance temperature control. The viscosity and heat transfer characteristics of the Thermal fluids are specifically selected for use with JULABO temperature control instruments.



#### Advantages

- Broad temperature ranges
- Low viscosity
- High stability
- Good thermal conductivity
- Almost odorless
- Long life



#### Makes routine laboratory work easier.

JULABO Thermal bath fluids are delivered in containers with a handy drain tap.



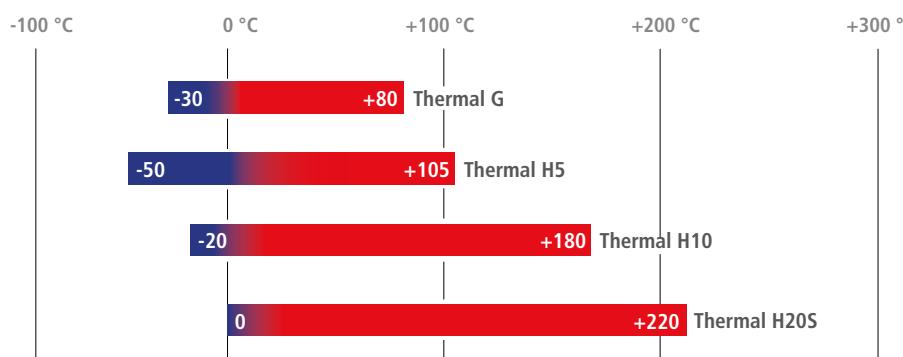
#### Tidy.

The special drain tap for easy draining of bath fluids without tools.

#### Thermal G

Order No. 5 liters	8 940 125
Order No. 10 liters	8 940 124
Working temperature range °C	-30 ... +80
Flash point °C	not applicable
Fire point °C	not applicable
Viscosity, (kinematic at +20 °C) mm <sup>2</sup> /s	4.07
Density (at +20 °C) g/cm <sup>3</sup>	1.08
Pour point °C	-70
Boiling point °C	+108
Ignition temperature °C	+430
Color	light yellow

#### Working temperature range





### Thermal H5

**Order No. 5 liters** 8 940 107

**Order No. 10 liters** 8 940 106

Working temperature range °C -50 ... +105

Flash point °C +124

Fire point °C +142

Viscosity, (kinematic at +20 °C) mm<sup>2</sup>/s 5.66

Density (at +20 °C) g/cm<sup>3</sup> 0.92

Pour point °C -100

Boiling point °C +288

Ignition temperature °C +350

Color clear

### Thermal H10

**Order No. 5 liters** 8 940 115

**Order No. 10 liters** 8 940 114

Working temperature range °C -20 ... +180

Flash point °C >+170

Fire point °C +220

Viscosity, (kinematic at +20 °C) mm<sup>2</sup>/s 10.8

Density (at +20 °C) g/cm<sup>3</sup> 0.94

Pour point °C <-60

Boiling point °C +288

Ignition temperature °C +370

Color clear

### Thermal H20S

**Order No. 5 liters** 8 940 109

**Order No. 10 liters** 8 940 108

Working temperature range °C 0 ... +220

Flash point °C +230

Fire point °C +264

Viscosity, (kinematic at +20 °C) mm<sup>2</sup>/s 22.3

Density (at +20 °C) g/cm<sup>3</sup> 0.95

Pour point °C -70

Boiling point °C +424

Ignition temperature °C +385

Color light brown

#### JULABO Thermal bath fluids based on silicone ...

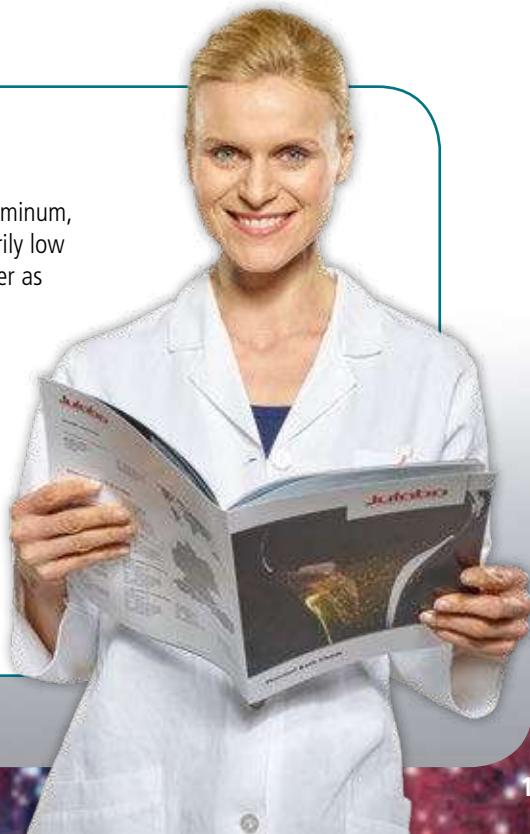
... are chemically inert substances which do not affect metals like iron, copper, zinc, aluminum, chrome or nickel. Compared to other fluids, JULABO Thermal fluids have an extraordinarily low electrical conductivity. When properly stored, the fluids will last for 12 months and longer as they are not susceptible to climatic influences.

#### JULABO Thermal bath fluids based on water-glycol ...

... (monoethyleneglycol with anti-corrosion additives) have excellent thermal characteristics and a low viscosity. In addition, they provide anti-freeze protection, i.e. they can be applied at temperatures below the freezing point of water.

#### More information on JULABO Thermal bath fluids ...

... in our brochure 'Thermal Bath Fluids' at [www.julabo.com](http://www.julabo.com).



## Refrigerated Circulators Accessories

**Water protective media** to prevent formation of algae and bacteria and **Descaling agent**



Order No.	Description	Suitable for
8 940 006	Aqua Stabil, 6 bottles 100 ml each	C, CD, CP
8 940 012	Aqua Stabil, 12 bottles 100 ml each	C, CD, CP
9 940 200	Descaling agent 1 Liter	C, CD, CP

**Hollow balls** to reduce heat loss, evaporation, oxygen input, odors, action of light



Order No.	Description	Suitable for
8 970 010	Hollow balls, Polypropylene®, 20 mm Ø, 1000 pcs (up to +100 °C, for water only)	C, CD, CP

**Heat exchangers / Cooling installations**



Order No.		Suitable for
9 970 240	Bath cover with built-in heat exchanger	CD-200F, CP-200F, CD-201F, CP-201F, CD-300F, CP-300F
9 970 242	Bath cover with built-in heat exchanger	CD-600F, CP-600F, CD-601F, CP-601F, CD-1000F, CP-1000F

**CR® tubing** (-30 °C ... +120 °C)



Order No.	Description	Suitable for
8 930 008	1 m, 8 mm inner dia.	CD, CP
8 930 010	1 m, 10 mm inner dia.	CD, CP
8 930 012	1 m, 12 mm inner dia.	CD, CP

**Viton® tubing** (-35 °C ... +200 °C)



Order No.	Description	Suitable for
8 930 108	1 m, 8 mm inner dia.	CD, CP
8 930 110	1 m, 10 mm inner dia.	CD, CP
8 930 112	1 m, 12 mm inner dia.	CD, CP

**PTFE tubing** (-60 °C ... +180 °C)



Bestell-Nr.	Bezeichnung	Einsetzbar für
8 930 140	PTFE tubing 8 mm ID x 10 mm OD per meter	CD, CP
8 930 142	PTFE tubing 12 mm ID x 14 mm OD per meter	CD, CP

**Tubing insulation** (-50 °C ... +100 °C)



Order No.	Description	Suitable for
8 930 410	1 m, for tubing 8 - 10 mm inner dia.	CR® / Viton® tubing
8 930 412	1 m, for tubing 12 mm inner dia.	CR® / Viton® tubing

## Tube clamps



Order No.	Description	Suitable for
8 970 480	2 Tube clamps, size 1	CR® / Viton® tubing 8 mm inner dia.
8 970 481	2 Tube clamps, size 2	CR® / Viton® tubing 10 - 12 mm inner dia.

## Metal tubing flexible, insulated (-50 °C ... +200 °C)



Order No.	Description	Suitable for
8 930 220	0.5 m Metal tubing, 2 fittings M16x1 female	CD, CP
8 930 221	1.0 m Metal tubing, 2 fittings M16x1 female	CD, CP
8 930 222	1.5 m Metal tubing, 2 fittings M16x1 female	CD, CP
8 930 223	3.0 m Metal tubing, 2 fittings M16x1 female	CD, CP

## Adapters and connectors



Order No.	Description	Suitable for
8 970 446	2 Barbed fittings for tubing 8 mm inner dia.	CD, CP
8 970 447	2 Barbed fittings for tubing 10 mm inner dia	CD, CP
8 970 445	2 Barbed fittings for tubing 12 mm inner dia.	CD, CP
8 970 443	1 Adapter M16x1 male to M16x1 male	CD, CP
8 970 490	2 Collar nuts M16x1 female	CD, CP
8 970 442	2 Elbow fittings 90°, M16x1 female / male	CD, CP
8 890 004	2 Adapters M16x1 female to NPT 1/4" male	CD, CP
8 890 005	2 Adapters M16x1 female to NPT 1/4" female	CD, CP
8 890 006	2 Adapters M16x1 female to NPT 3/8" male	CD, CP
8 890 007	2 Adapters M16x1 female to NPT 3/8" female	CD, CP
8 890 008	2 Adapters M16x1 female to NPT 1/2" male	CD, CP
8 890 009	2 Adapters M16x1 female to NPT 1/2" female	CD, CP
8 890 010	2 Adapters M16x1 male to NPT 1/4" female	CD, CP
8 891 008	1 Adapter M16x1 male to BSP 1/2" female	CD, CP
8 891 009	1 Adapter M16x1 male to BSP 3/4" female	CD, CP
8 890 011	2 Adapters M16x1 female to tube 1/4" male	CD, CP
8 890 012	2 Adapters M16x1 female to tube 3/8" male	CD, CP
8 890 013	2 Adapters M16x1 female to tube 1/2" male	CD, CP
8 890 024	2 Adapters M16x1 female to M16x1 female	CD, CP

## Shut-off valves for loop circuit



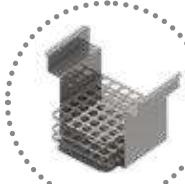
Order No.	Description	Suitable for
8 970 457	Shut-off valve (-30 °C ... +200 °C), M16x1	CD, CP
8 970 456	Shut-off valve (-10 °C ... +100 °C), M16x1	CD, CP

## Refrigerated Circulators Accessories



### Twin distributing adapters with barbed fittings

Order No.	Description	Suitable for
8 970 470	Twin distributing adapter with barbed fittings	Tubing 8 mm inner dia.
8 970 471	Twin distributing adapter with barbed fittings	Tubing 12 mm inner dia.
8 970 472	Twin distributing adapter with barbed fittings	Tubing 10 mm inner dia.
8 970 473	Twin distributing adapter M16x1 female to 2 x M16x1 male	CD, CP



### Test tube racks made out of stainless steel, up to +150 °C

Order No.	Description	Suitable for
9 970 320	Test tube rack for 30 tubes 100 x 17 mm dia.	CD-200F, CP-200F, CD-201F, CP-201F CD-300F, CP-300F
9 970 321	Test tube rack for 42 tubes 75 x 12 / 13 mm dia.	CD-200F, CP-200F, CD-201F, CP-201F CD-300F, CP-300F
9 970 322	Test tube rack for 42 tubes 40 x 10 / 11 mm dia.	CD-200F, CP-200F, CD-201F, CP-201F CD-300F, CP-300F
9 970 323	Test tube rack for 10 falcon tubes 50 ml	CD-200F, CP-200F, CD-201F, CP-201F CD-300F, CP-300F



### Immersion-height adjustable platforms

Order No.	Description	Suitable for
9 970 506	Immersion-height adjustable platform	CD-900F, CP-900F



### Accessories Beer Forcing Test

Order No.	Description	Suitable for
9 970 247	Transparent bath cover, plexiglas, temperature range -10 °C ... +80 °C	CD1001F, CP-1001F
9 970 337	Basket for 20 bottles 0.33 l / 0.5 l, stainless steel	CD1001F, CP-1001F



### Software and hardware for instrument control, data recording and visualization, interfaces

Order No.	Description	Suitable for
8 901 102	EasyTEMP Software (free of charge at <a href="http://www.julabo.com">www.julabo.com</a> )	CD, CP
8 901 105	EasyTEMP Professional Software, incl. USB-Dongle	CD, CP
9 900 110	USB interface cable 2 m, type A-B	CD, CP
9 900 112	USB 2.0 Repeater extension cable, length = 5 m	CD, CP
9 900 114	USB 2.0 Repeater extension cable, length = 10 m	CD, CP
8 980 073	RS232 interface cable, length 2,5 m. Interface cable RS232 9-pole/9-pole	CP
8 980 074	RS232 interface cable, length 5 m. Interface cable RS232 9-pole/9-pole.	CP
8 980 031	Ethernet/RS232 interface converter for temperature control instruments with RS232 interface.	CP
8 980 032	Ethernet/RS232 Converter Connection of up to 4 JULABO instruments via RS232 interface cable (8980074). Connection to an existing network via RJ45 cable (8980071).	CP
8 980 033	Ethernet/RS232 Converter Connection of up to 8 JULABO instruments via RS232 interface cable (8980074). Connection to an existing network via RJ45 cable (8980071).	CP



### Calibration and testing certificates

Order No.	Description	Suitable for
<b>8 902 901</b>	1-Point Manufacturer's calibration certificate	C, CD, CP
<b>8 902 903</b>	3-Point Manufacturer's calibration certificate	C, CD, CP
<b>8 902 905</b>	5-Point Manufacturer's calibration certificate	C, CD, CP
<b>8 903 025</b>	Manufacturer's testing certificate for JULABO units (with up to 1 kW cooling capacity at +20 °C)	Refrigerated Circulators



### IQ/OQ Documentation for equipment qualification

Order No.	Description	Suitable for
<b>2 310 110</b>	IQ/OQ Documentation, Category 1	CD, CP



### Preventative Maintenance Contract

Order No.	Description	Suitable for
<b>2 350 100</b>	Preventative Maintenance Contract Standard includes the following services: Visual inspection, technical diagnostics, data analysis, BlackBox, testing of tube connections and bath fluid, thorough cleaning of condenser and other components, testing of temperature stability and sensor calibration, testing /measuring of pump and cooling capacity (depending on model) and firmware update (if no hardware adjustment is required)	CD, CP
<b>2 350 110</b>	Preventative Maintenance Contract Premium includes all services listed above as well as spare parts and labor required for installation or replacement	CD, CP



CORIO **Heating Circulators** feature professional technology for routine laboratory tasks. The portfolio permits a wide range of applications and includes immersion circulators, open heating bath circulators, and heating circulators.



# Heating Circulators



## Heating Circulators

### CORIO C Immersion Circulator

for working temperatures from +20 °C to +100 °C

The CORIO C is the entry level model of the CORIO circulator portfolio. The bath attachment clamp is included in delivery and facilitates mounting of the circulator on any bath tank up to 30 liters.

- Precise temperature control
- For internal standard applications
- For bath tanks with a max. filling volume of 30 liters
- Immersion depth: 7.5 ... 16.5 cm
- Bright, white, easy-to-read display
- Whisper quiet
- Easy operation
- Class I (NFL) according to DIN 12876-1

To adapt the CORIO Immersion Circulator to your individual application we offer a comprehensive range of accessories (racks, bath lids, and more).



#### Option I

The universal bath attachment clamp permits mounting the CORIO Immersion Circulator on rectangular as well as round bath tanks.



#### Option II

Just a few simple steps and the bath attachment clamp is transformed into a mount for laboratory stands.



#### Option III

The Immersion Circulator can be attached directly to the rim of an open JULABO bath.



#### Flexibility.

The jet nozzle permits continuous adjustment of the pump stream in your bath.



### CORIO™ C

Order No.	9 011 000	
Working temperature range °C <sup>1)</sup>	+20 ... +100	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Circulation capacity l/min		bar
Flow rate / Pressure	6	0.1
Dimensions cm	W × L × H 13.2 × 16 × 36.2	

#### Applications (CORIO C, CD and CP)

Flexible applications when changing bath tanks. For a large variety of applications in chemistry, pharmaceuticals, medicine, e.g. temperature applications, analytics, or material testing.

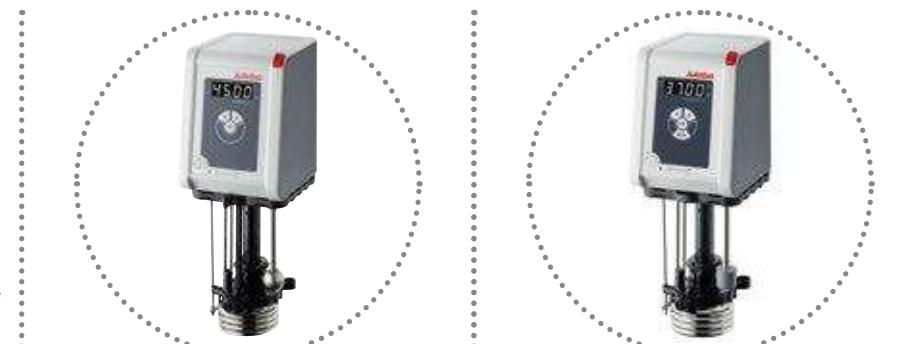
## CORIO CD and CP Immersion Circulator

for working temperatures from +20 °C to +200 °C

In addition to the advantages of the CORIO C Circulator, the CORIO CD and CP Immersion Circulator can be equipped with an optional pump set for temperature control of external applications.

- Precise temperature control
- For internal and external applications (accessories required)
- For bath tanks with a max. filling volume of 50 liters
- Immersion depth: 7.5 ... 16.5 cm
- Bright, white, easy-to-read display
- Very quiet
- Easy handling
- Easy change-over from internal to external circulation and vice versa
- pump capacity, infinitely adjustable (CP)
- USB interface
- R232 interface (CP)
- Early warning system for low liquid level (CP)
- Class III (FL) according to DIN 12876-1

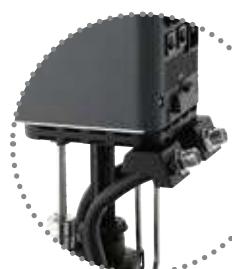
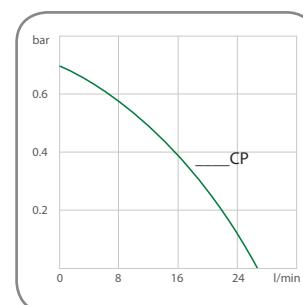
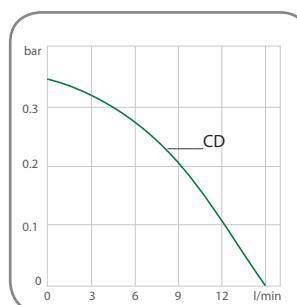
To adapt the CORIO Immersion Circulator to your individual application we offer a comprehensive range of accessories (racks, bath lids, tubing, adapters, and more).



<b>CORIO™ CD</b>		<b>CORIO™ CP</b> <span style="border: 1px solid #00AEEF; border-radius: 50%; padding: 2px;">NEW</span>	
Order No.	9 012 000	Order No.	9 013 000
Working temperature range °C <sup>1)</sup>	+20 ... +150	Working temperature range °C <sup>1)</sup>	+20 ... +200
Temperature stability °C	± 0.03	Temperature stability °C	± 0.02
Heating capacity kW	2	Heating capacity kW	2
Pump capacity	l/min	bar	
Flow rate / Pressure	15	0.35	
Dimensions cm	W × L × H 13.2 × 16 × 36.2		

### Pump capacity

Bath fluid: Water



### Optional pump set

With a few simple steps you can install a pump set on the CORIO CD Immersion Circulator. In no time at all, your circulator is ready for temperature control of an external application.



### Universal.

Universal bath attachment clamp. For straight containers. For round containers. For laboratory stands (in combination with stand attachment).

<sup>1)</sup> For applications near or below ambient temperature: use a cooling coil or JULABO immersion cooler.

## Heating Circulators

### CORIO C Open Heating Bath Circulators

for internal temperature applications with transparent bath tanks  
for working temperatures from +20 °C to +100 °C

The Open Heating Bath Circulators of the CORIO series feature durable, high-quality transparent bath tanks.

- For internal applications
- Bright, white, easy-to-read display
- Whisper quiet

To adapt the CORIO Open Heating Bath Circulator to your individual application we offer a comprehensive range of accessories (racks, bath lids, and more).



#### Clever.

A clean solution. The cleverly integrated drip off design (B and BT baths).



#### CORIO™ C-BT5

Order No. 9 011 305

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Circulation capacity l/min      bar  
Flow rate / Pressure 6      0.1

Bath opening / W × L / D  
Bath depth cm 15 × 15 / 15

Filling volume liters 3.5 ... 5

Dimensions cm W × L × H  
23 × 38 × 38



**CORIO™ C-BT9**

Order No. 9 011 309

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Circulation capacity l/min bar  
Flow rate / Pressure 6 0.1

Bath opening / Bath depth cm W × L / D 23 × 15 / 15

Filling volume liters 6 ... 9

Dimensions cm W × L × H 32 × 38 × 38

**CORIO™ C-BT19**

Order No. 9 011 319

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Circulation capacity l/min bar  
Flow rate / Pressure 6 0.1

Bath opening / Bath depth cm W × L / D 30 × 35 / 15

Filling volume liters 14 ... 19

Dimensions cm W × L × H 38 × 58 × 38

**CORIO™ C-BT27**

Order No. 9 011 327

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Circulation capacity l/min bar  
Flow rate / Pressure 6 0.1

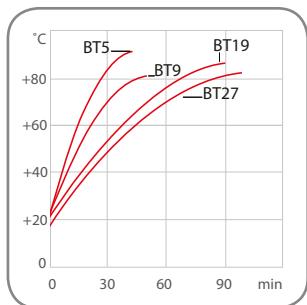
Bath opening / Bath depth cm W × L / D 30 × 35 / 20

Filling volume liters 20 ... 27

Dimensions cm W × L × H 38 × 58 × 43

**Heat-up time**

Bath fluid: Water

**Applications**

Temperature control of samples, preparation of samples for serology and clinical chemistry, analysis, material testing, and more.

<sup>1)</sup>with counter cooling/bath cover (accessory).

## Heating Circulators

### CORIO C Open Heating Bath Circulators

for internal temperature applications with stainless steel bath tanks for working temperatures from +20 °C to +100 °C

The Open Heating Bath Circulators of the CORIO series feature high-quality bath tanks made of stainless steel.

- For internal applications
- Bright, white, easy-to-read display
- Whisper quiet
- High-quality bath tanks made of stainless steel
- Integrated drain screw (except for B5)

To adapt the CORIO Open Heating Bath Circulator to your individual application we offer a comprehensive range of accessories (racks, bath lids, and more).

#### Applications

Temperature control of samples, preparation of samples for serology and clinical chemistry, analysis, material testing, and more.



#### CORIO™ C-B5

Order No. 9 011 405

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Circulation capacity l/min bar  
Flow rate / Pressure 6 0.1

Bath opening / W × L / D  
Bath depth cm 15 × 15 / 15

Filling volume liters 3.5 ... 5

Dimensions cm W × L × H  
23 × 38 × 41





## CORIO™ C-B13

Order No. 9 011 413

Working temperature range °C <sup>1)</sup>	+20 ... +100	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Circulation capacity l/min	bar	
Flow rate / Pressure	6	0.1
Bath opening / Bath depth cm	W × L / D 30 × 18 / 15	
Filling volume liters	9 ... 13	
Dimensions cm	W × L × H 38 × 40 × 42	



## CORIO™ C-B17

Order No. 9 011 417

Working temperature range °C <sup>1)</sup>	+20 ... +100	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Circulation capacity l/min	bar	
Flow rate / Pressure	6	0.1
Bath opening / Bath depth cm	W × L / D 30 × 18 / 20	
Filling volume liters	13 ... 17	
Dimensions cm	W × L × H 38 × 40 × 47	



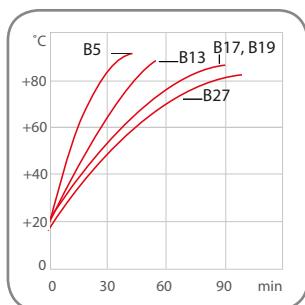
## CORIO™ C-B19

Order No. 9 011 419

Working temperature range °C <sup>1)</sup>	+20 ... +100	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Circulation capacity l/min	bar	
Flow rate / Pressure	6	0.1
Bath opening / Bath depth cm	W × L / D 30 × 35 / 15	
Filling volume liters	14 ... 19	
Dimensions cm	W × L × H 38 × 58 × 42	

### Heat-up time

Bath fluid: Water



## CORIO™ C-B27

Order No. 9 011 427

Working temperature range °C <sup>1)</sup>	+20 ... +100	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Circulation capacity l/min	bar	
Flow rate / Pressure	6	0.1
Bath opening / Bath depth cm	W × L / D 30 × 35 / 20	
Filling volume liters	17 ... 27	
Dimensions cm	W × L × H 38 × 58 × 47	

<sup>1)</sup>with counter cooling/bath cover (accessory).

## Heating Circulators

### CORIO CD Open Heating Bath Circulators

for internal and external temperature applications with transparent bath tanks  
for working temperatures from +20 °C to +100 °C

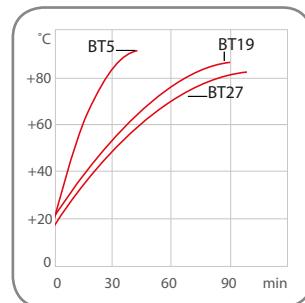
The Open Heating Bath Circulator of the CORIO series feature durable, high-quality transparent bath tanks and pump connections.

- For internal and external applications
- Bright, white, easy-to-read display
- Very quiet
- Easy change-over from internal to external circulation and vice versa

To adapt the CORIO Open Heating Bath Circulator to your individual application we offer a comprehensive range of accessories (racks, bath lids, tubing, adapters and more).

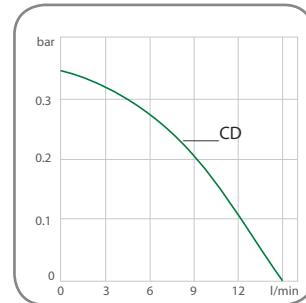
#### Heat-up time

Bath fluid: Water



#### Pump capacity

Bath fluid: Water



#### Applications

Temperature control of samples, preparation of samples for serology and clinical chemistry, analysis, material testing, external temperature control applications in combination with measuring instruments, measuring cells, photometers, refractometers, polarimeters, and more.



## CORIO™ CD-BT5

Order No. 9 012 305

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 15 0.35

Bath opening / Bath depth cm W × L / D  
15 × 15 / 15

Filling volume liters 3.5 ... 5

Dimensions cm W × L × H  
23 × 38 × 38



## CORIO™ CD-BT19

Order No. 9 012 319

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 15 0.35

Bath opening / Bath depth cm W × L / D  
30 × 35 / 15

Filling volume liters 14 ... 19

Dimensions cm W × L × H  
38 × 58 × 38



## CORIO™ CD-BT27

Order No. 9 012 327

Working temperature range °C<sup>1)</sup> +20 ... +100

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 15 0.35

Bath opening / Bath depth cm W × L / D  
30 × 35 / 20

Filling volume liters 20 ... 27

Dimensions cm W × L × H  
38 × 58 × 43



Bath opening:  
W × L / D



Dimensions:  
W × L × H



<sup>1)</sup> with counter cooling/bath cover (accessory).

## Heating Circulators

### CORIO CD Open Heating Bath Circulators

for internal and external temperature applications with stainless steel bath tanks  
for working temperatures from +20 °C to +150 °C

The Open Heating Bath Circulators of the CORIO series feature high-quality bath tanks made of stainless steel and with pump connections.

- For internal and external applications
- Bright, white, easy-to-read display
- Very quiet
- Easy change-over from internal to external circulation and vice versa
- USB connection
- High-quality bath tanks made of stainless steel
- Integrated drain screw (except for B5)

To adapt the CORIO Open Heating Bath Circulator to your individual application we offer a comprehensive range of accessories (racks, bath lids, tubing, adapters, and more).

#### Applications

Temperature control of samples, preparation of samples for serology and clinical chemistry, analysis, material testing, external temperature control applications in combination with measuring instruments, measuring cells, photometers, refractometers, polarimeters, and more.



#### CORIO™ CD-B5

Order No. 9 012 405

Working temperature range °C<sup>1)</sup> +20 ... +150

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min 15 bar 0.35

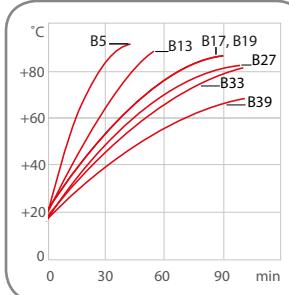
Bath opening / Bath depth cm W × L / D 15 × 15 / 15

Filling volume liters 3.5 ... 5

Dimensions cm W × L × H 23 × 38 × 41

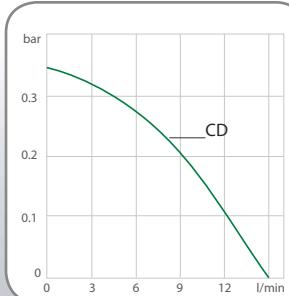
#### Heat-up time

Bath fluid: Water



#### Pump capacity

Bath fluid: Water



<sup>1)</sup> with counter cooling / bath cover (accessory).


**CORIO™ CD-B13**

<b>Order No.</b>	<b>9 012 413</b>	
Working temperature range °C <sup>1)</sup>	+20 ... +150	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Pump capacity l/min	15	bar 0.35
Bath opening / Bath depth cm	W × L / D 30 × 18 / 15	
Filling volume liters	9 ... 13	
Dimensions cm	W × L × H 38 × 40 × 42	


**CORIO™ CD-B17**

<b>Order No.</b>	<b>9 012 417</b>	
Working temperature range °C <sup>1)</sup>	+20 ... +150	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Pump capacity l/min	15	bar 0.35
Bath opening / Bath depth cm	W × L / D 30 × 18 / 20	
Filling volume liters	13 ... 17	
Dimensions cm	W × L × H 38 × 40 × 47	


**CORIO™ CD-B19**

<b>Order No.</b>	<b>9 012 419</b>	
Working temperature range °C <sup>1)</sup>	+20 ... +150	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Pump capacity l/min	15	bar 0.35
Bath opening / Bath depth cm	W × L / D 30 × 35 / 15	
Filling volume liters	14 ... 19	
Dimensions cm	W × L × H 38 × 58 × 42	


**CORIO™ CD-B27**

<b>Order No.</b>	<b>9 012 427</b>	
Working temperature range °C <sup>1)</sup>	+20 ... +150	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Pump capacity l/min	15	bar 0.35
Bath opening / Bath depth cm	W × L / D 30 × 35 / 20	
Filling volume liters	17 ... 27	
Dimensions cm	W × L × H 38 × 58 × 47	


**CORIO™ CD-B33**

<b>Order No.</b>	<b>9 012 433</b>	
Working temperature range °C <sup>1)</sup>	+20 ... +150	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Pump capacity l/min	15	bar 0.35
Bath opening / Bath depth cm	W × L / D 66 × 32 / 15	
Filling volume liters	26 ... 39	
Dimensions cm	W × L × H 91 × 36 × 43	


**CORIO™ CD-B39**

<b>Order No.</b>	<b>9 012 439</b>	
Working temperature range °C <sup>1)</sup>	+20 ... +150	
Temperature stability °C	± 0.03	
Heating capacity kW	2	
Pump capacity l/min	15	bar 0.35
Bath opening / Bath depth cm	W × L / D 33 × 30 / 30	
Filling volume liters	35 ... 41	
Dimensions cm	W × L × H 54 × 34 × 57	

## Heating Circulators

### CORIO CD and CP Heating Circulators

for internal and external temperature applications with stainless steel baths  
for working temperatures from +20 °C to +200 °C

CORIO Heating Circulators feature professional technology for demanding applications. These units facilitate internal temperature control in the bath tank or control of externally connected applications.

- For internal and external applications
- Bright, white, easy-to-read display
- Very quiet
- Easy change-over from internal to external circulation and vice versa
- Strong pump capacity, infinitely adjustable (CP)
- USB connection
- R232 interface (CP)
- High-quality bath tanks made of stainless steel with bath lid and drain tap
- Integrated pump connection M16x1
- Early warning system for low liquid level (CP)
- Integrated cooling coil for counter-cooling

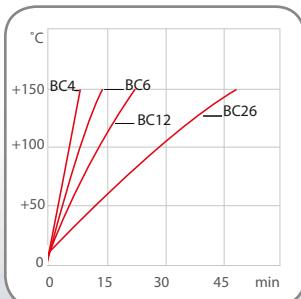
To adapt the CORIO Heating Circulator to your individual application we offer a comprehensive range of accessories (racks, bath lids, tubing, adapters, and more).

#### Applications

External temperature applications in combination with jacketed reactors, distillation apparatus, mini-plant applications, photometers, refractometers, internal temperature applications of samples and small objects.

#### Heat-up time

Bath fluid: Thermal



### CORIO™ CD-BC4

Order No. 9 012 504

Working temperature range °C<sup>1)</sup> +20 ... +150

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min 15 bar 0.35

Bath opening / Bath depth cm W × L / D 13 × 15 / 15

Filling volume liters 3 ... 4.5

Dimensions cm W × L × H 23 × 41 × 42



### CORIO™ CP-BC4

NEW

Order No. 9 013 504

Working temperature range °C<sup>1)</sup> +20 ... +200

Temperature stability °C ± 0.02

Heating capacity kW 2

Pump capacity l/min 8 ... 27 bar 0.1 ... 0.7

Bath opening / Bath depth cm W × L / D 13 × 15 / 15

Filling volume liters 3 ... 4.5

Dimensions cm W × L × H 23 × 41 × 42

<sup>1)</sup> For applications near or below ambient temperature: use a cooling coil or JULABO immersion cooler.


**CORIO™ CD-BC6**

Order No. 9 012 506

Working temperature range °C<sup>1)</sup> +20 ... +150

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 15 0.35

Bath opening / Bath depth cm W × L / D 13 × 15 / 20

Filling volume liters 4.5 ... 6

Dimensions cm W × L × H 24 × 44 × 47

**CORIO™ CD-BC12**

Order No. 9 012 512

Working temperature range °C<sup>1)</sup> +20 ... +150

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 15 0.35

Bath opening / Bath depth cm W × L / D 22 × 15 / 20

Filling volume liters 8.5 ... 12

Dimensions cm W × L × H 33 × 49 × 47

**CORIO™ CD-BC26**

Order No. 9 012 526

Working temperature range °C<sup>1)</sup> +20 ... +150

Temperature stability °C ± 0.03

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 15 0.35

Bath opening / Bath depth cm W × L / D 26 × 35 / 20

Filling volume liters 19 ... 26

Dimensions cm W × L × H 39 × 62 × 48


**CORIO™ CP-BC6**
NEW

Order No. 9 013 506

Working temperature range °C<sup>1)</sup> +20 ... +200

Temperature stability °C ± 0.02

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 8 ... 27 0.1 ... 0.7

Bath opening / Bath depth cm W × L / D 13 × 15 / 20

Filling volume liters 4.5 ... 6

Dimensions cm W × L × H 24 × 44 × 47

**CORIO™ CP-BC12**
NEW

Order No. 9 013 512

Working temperature range °C<sup>1)</sup> +20 ... +200

Temperature stability °C ± 0.02

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 8 ... 27 0.1 ... 0.7

Bath opening / Bath depth cm W × L / D 22 × 15 / 20

Filling volume liters 8.5 ... 12

Dimensions cm W × L × H 33 × 49 × 47

**CORIO™ CP-BC26**
NEW

Order No. 9 013 526

Working temperature range °C<sup>1)</sup> +20 ... +200

Temperature stability °C ± 0.02

Heating capacity kW 2

Pump capacity l/min bar  
Flow rate / Pressure 8 ... 27 0.1 ... 0.7

Bath opening / Bath depth cm W × L / D 26 × 35 / 20

Filling volume liters 19 ... 26

Dimensions cm W × L × H 39 × 62 × 48

### JULABO Thermal Bath Fluids

JULABO Thermal bath fluids have been carefully chosen following long term testing. They are highly suitable for all of your temperature control applications guaranteeing safe and reliable operation.

Choosing the proper bath fluid is critical for high performance temperature control. The viscosity and heat transfer characteristics of the Thermal fluids are specifically selected for use with JULABO CORIO temperature control instruments.



#### Thermal G

Order No. 5 liters	8 940 125
Order No. 10 liters	8 940 124
Working temperature range °C	-30 ... +80
Flash point °C	not applicable
Fire point °C	not applicable
Viscosity, (kinematic at +20 °C) mm <sup>2</sup> /s	4.07
Density (at +20 °C) g/cm <sup>3</sup>	1.08
Pour point °C	-70
Boiling point °C	+108
Ignition temperature °C	+430
Color	light yellow

#### Advantages

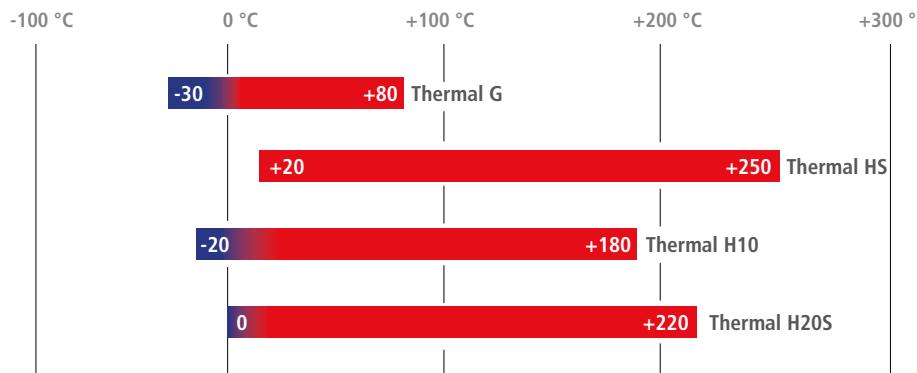
- Wide temperature ranges
- Low viscosity
- High stability
- Good heat conductivity
- Minimum odor
- Long fluid life



#### Makes routine laboratory work easier.

JULABO Thermal bath fluids are delivered in containers with a handy drain tap.

#### Working temperature ranges





## Thermal HS

<b>Order No. 5 liters</b>	<b>8 940 103</b>
<b>Order No. 10 liters</b>	<b>8 940 102</b>
Working temperature range °C	+20 ... +250
Flash point °C	+270
Fire point °C	+360
Viscosity, (kinematic at +20 °C) mm <sup>2</sup> /s	55
Density (at +20 °C) g/cm <sup>3</sup>	0.96
Pour point °C	<-60
Boiling point °C	+246
Ignition temperature °C	>+400
Color	light brown

## Thermal H10

<b>Order No. 5 liters</b>	<b>8 940 115</b>
<b>Order No. 10 liters</b>	<b>8 940 114</b>
Working temperature range °C	-20 ... +180
Flash point °C	>+170
Fire point °C	+220
Viscosity, (kinematic at +20 °C) mm <sup>2</sup> /s	10.8
Density (at +20 °C) g/cm <sup>3</sup>	0.94
Pour point °C	<-60
Boiling point °C	+288
Ignition temperature °C	+370
Color	clear

## Thermal H20S

<b>Order No. 5 liters</b>	<b>8 940 109</b>
<b>Order No. 10 liters</b>	<b>8 940 108</b>
Working temperature range °C	0 ... +220
Flash point °C	+230
Fire point °C	+264
Viscosity, (kinematic at +20 °C) mm <sup>2</sup> /s	22.3
Density (at +20 °C) g/cm <sup>3</sup>	0.95
Pour point °C	-70
Boiling point °C	+424
Ignition temperature °C	+385
Color	light brown

### JULABO Thermal bath fluids based on silicone ...

... are chemically inert substances which do not affect metals like iron, copper, zinc, aluminum, chrome or nickel. Compared to other fluids, JULABO Thermal fluids have an extraordinarily low electrical conductivity. When properly stored, the fluids will last for 12 months and longer as they are not susceptible to climatic influences.

### JULABO Thermal bath fluids based on water-glycol ...

... (monoethyleneglycol with anti-corrosion additives) have excellent thermal characteristics and a low viscosity. In addition, they provide anti-freeze protection, i.e. they can be applied at temperatures below the freezing point of water.

### More information on JULABO Thermal bath fluids ...

... in our brochure 'Thermal Bath Fluids' at [www.julabo.com](http://www.julabo.com).



## Heating Circulators Accessories



**Water protective media** to prevent formation of algae and bacteria and **Descaling agent**

Order No.	Description	Suitable for
8 940 006	Aqua Stabil, 6 bottles 100 ml each	C, CD, CP
8 940 012	Aqua Stabil, 12 bottles 100 ml each	C, CD, CP
9 940 200	Descaling agent 1 Liter	C, CD, CP



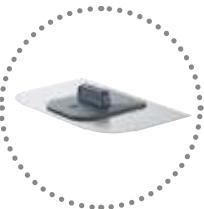
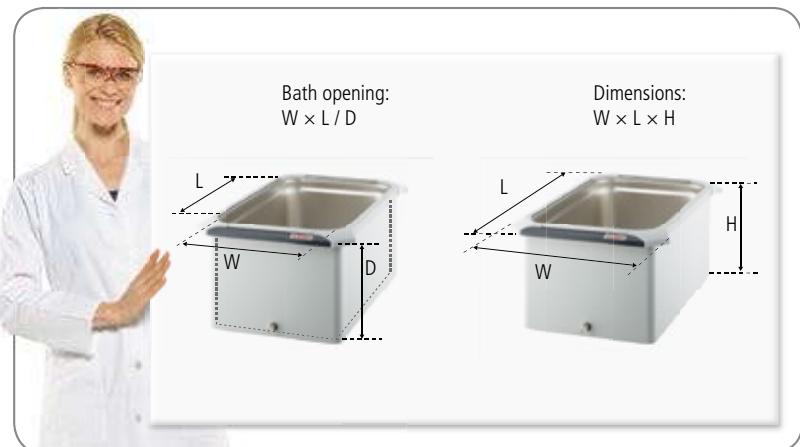
**Transparent bath tanks up to +100 °C**

Order No.	Description	Inner dimensions cm	Outer dimensions cm	Suitable for
9 901 305	Bath tank BT5	15 x 30 / 15	22 x 37 x 16	C, CD
9 901 309	Bath tank BT9	24 x 30 / 15	31 x 37 x 16	C, CD
9 901 319	Bath tank BT19	30 x 50 / 15	37 x 58 x 16	C, CD
9 901 327	Bath tank BT27	30 x 50 / 20	37 x 58 x 21	C, CD



**Stainless steel bath tanks up to +150 °C, insulated**

Order No.	Description	Inner dimensions cm	Outer dimensions cm	Suitable for
9 903 405	Bath tank B5	15 x 30 / 15	22 x 37 x 20	C, CD
9 903 413	Bath tank B13	30 x 32 / 15	37 x 40 x 20	C, CD
9 903 417	Bath tank B17	30 x 32 / 20	37 x 40 x 25	C, CD
9 903 419	Bath tank B19	30 x 50 / 15	37 x 58 x 20	C, CD
9 903 427	Bath tank B27	30 x 50 / 20	37 x 58 x 25	C, CD
9 903 433	Bath tank B33	83 x 30 / 15	90 x 36 x 20	C, CD
9 903 439	Bath tank B39	30 x 50 / 30	34 x 58 x 35	C, CD



**Bath covers**

Order No.	Description	Suitable for
9 970 296	Flat bath cover	B5, BT5
9 970 290	Flat bath cover	B13, B17
9 970 291	Flat bath cover	B19, B27, BT19, BT27
9 970 292	Flat bath cover	B33
9 970 293	Flat bath cover	B39
9 970 253	Lift-up gable bath cover made of stainless steel	B13, B17
9 970 254	Lift-up gable bath cover made of stainless steel	B19, B27, BT19, BT27
9 970 257	Lift-up gable bath cover made of stainless steel	B33



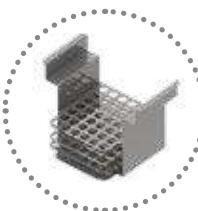
### Assembly frames

Order No.	Description	Suitable for
<b>9 970 229</b>	Stainless steel bridge including assembly frame	C-BT5, C-B5
<b>9 970 228</b>	Stainless steel bridge including assembly frame	C-BT19/27, C-B13/17/19/27
<b>9 970 201</b>	Extendable bridge, extendable from 330 mm to 680 mm	C, CD, CP



**Hollow balls** to reduce heat loss, evaporation, oxygen input, odors, action of light

Order No.	Description	Suitable for
<b>8 970 010</b>	Hollow balls, Polypropylene®, 20 mm Ø, 1000 pcs (up to +100 °C, for water only)	C, CD, CP



**Test tube racks** made out of stainless steel, up to +150 °C

Order No.	Description	Suitable for
<b>9 970 320</b>	Test tube rack for 30 tubes 100 × 17 mm dia.	B5, BT5, BC4, BC6
<b>9 970 321</b>	Test tube rack for 42 tubes 75 × 12/13 mm dia.	B5, BT5, BC4, BC6
<b>9 970 322</b>	Test tube rack for 42 tubes 40 × 10/11 mm dia.	B5, BT5, BC4, BC6
<b>9 970 323</b>	Test tube rack for 10 Falcon tubes 50 ml	B5, BT5, BC4, BC6



**Test tube racks** made out of high grade plastic, up to +100 °C

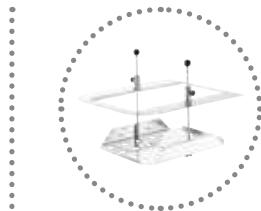
Order No.	Description	Suitable for
<b>9 970 300</b>	Test tube rack for 60 tubes 100 × 16/17 mm dia.	B13, B17, B19, B27, B33, BT19, BT27
<b>9 970 301</b>	Test tube rack for 90 tubes 75 × 12/13 mm dia.	B13, B17, B19, B27, B33, BT19, BT27
<b>9 970 303</b>	Test tube rack for 21 tubes 30 mm dia.	B13, B17, B19, B27, B33, BT19, BT27



Which types of test tube racks are available for your bath and how many can be inserted?

Order No.	BT5	BT9	BT19	BT27	B5	B13	B17	B19	B27	B33	B39
<b>9 970 320</b>	1	-	-	-	1	-	-	-	-	-	-
<b>9 970 321</b>	1	-	-	-	1	-	-	-	-	-	-
<b>9 970 322</b>	1	-	-	-	1	-	-	-	-	-	-
<b>9 970 323</b>	1	-	-	-	1	-	-	-	-	-	-
<b>9 970 300</b>	-	-	3	3	-	1	1	3	3	6	-
<b>9 970 301</b>	-	-	3	3	-	1	1	3	3	6	-
<b>9 970 303</b>	-	-	3	3	-	1	1	3	3	6	-

## Heating Circulators Accessories



### Immersion-height adjustable platforms

Order No.	Description	Suitable for
<b>9 970 506</b>	Immersion-height adjustable platform	CD-BC26, CP-BC26
<b>9 970 503</b>	Immersion-height adjustable platform	B13, B17
<b>9 970 502</b>	Immersion-height adjustable platform	B19, B27, BT19, BT27



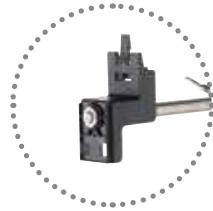
### Universal bath attachment clamp

Order No.	Description	Suitable for
<b>9 970 420</b>	Bath attachment clamp for wall thickness up to 30 mm	C, CD, CP



### Pump set for external temperature applications

Order No.	Description	Suitable for
<b>9 970 140</b>	Pump set (Pump connectors M16x1)	CD
<b>9 970 141</b>	Pump set (Pump connectors M16x1)	CP



### Stand attachment for laboratory stands

Order No.	Description	Suitable for
<b>9 970 022</b>	Stand attachment with rod 200x12 mm dia.	C, CD, CP



### Heat exchangers / Cooling installations

Order No.	Description	Suitable for
<b>9 970 240</b>	Bath cover with built-in heat exchanger	BC4, BC6
<b>9 970 242</b>	Bath cover with built-in heat exchanger	BC12
<b>9 970 100</b>	Assembly cooling coil for counter-cooling with tap water for installation into the existing assembly frame	CD-BT5/19/27,CD-B5/13/17/19/27/33/39
<b>9 970 101</b>	Installation cooling coil for counter-cooling with tap water for mounting on circulator head and for use with the universal bath attachment clamp (without assembly frame)	C, C-BT5/9/19/27,C-B5/13/17/19/27, CD, CP

**CR® tubing** (-30 °C ... +120 °C)


Order No.	Description	Suitable for
<b>8 930 008</b>	1 m, 8 mm inner dia.	CD, CP
<b>8 930 010</b>	1 m, 10 mm inner dia.	CD, CP
<b>8 930 012</b>	1 m, 12 mm inner dia.	CD, CP

**Viton® tubing** (-35 °C ... +200 °C)


Order No.	Description	Suitable for
<b>8 930 108</b>	1 m, 8 mm inner dia.	CD, CP
<b>8 930 110</b>	1 m, 10 mm inner dia.	CD, CP
<b>8 930 112</b>	1 m, 12 mm inner dia.	CD, CP

**PTFE tubing** (-60 °C ... +180 °C)


Bestell-Nr.	Bezeichnung	Einsetzbar für
<b>8 930 140</b>	PTFE tubing 8 mm ID × 10 mm OD per meter	CD, CP
<b>8 930 142</b>	PTFE tubing 12 mm ID × 14 mm OD per meter	CD, CP

**Tubing insulation** (-50 °C ... +100 °C)


Order No.	Description	Suitable for
<b>8 930 410</b>	1 m, for tubing 8 - 10 mm inner dia.	CR®/Viton® Tubing
<b>8 930 412</b>	1 m, for tubing 12 mm inner dia.	CR®/Viton® Tubing

**Tube clamps**


Order No.	Description	Suitable for
<b>8 970 480</b>	2 Tube clamps, size 1	CR®/Viton® Tubing 8 mm inner dia.
<b>8 970 481</b>	2 Tube clamps, size 2	CR®/Viton® Tubing 10 - 12 mm inner dia.

**Metal tubing** flexible, insulated (-50 °C ... +200 °C)


Order No.	Description	Suitable for
<b>8 930 220</b>	0.5 m Metal tubing, 2 fittings M16×1 female	CD, CP
<b>8 930 221</b>	1.0 m Metal tubing, 2 fittings M16×1 female	CD, CP
<b>8 930 222</b>	1.5 m Metall tubing, with connector M16×1	CD, CP
<b>8 930 223</b>	3.0 m Metal tubing with connector M16×1	CD, CP

## Heating Circulators Accessories

### Adapters and connectors

Order No.	Description	Suitable for
8 970 446	2 Barbed fittings for tubing 8 mm inner dia.	CD, CP
8 970 447	2 Barbed fittings for tubing 10 mm inner dia.	CD, CP
8 970 445	2 Barbed fittings for tubing 12 mm inner dia	CD, CP
8 970 443	1 Adapter M16×1 male to M16×1 male	CD, CP
8 970 490	2 Collar nuts M16×1 female	CD, CP
8 970 442	2 Elbow fittings 90°, M16×1 female/male	CD, CP
8 890 004	2 Adapters M16×1 female to NPT 1/4" male	CD, CP
8 890 005	2 Adapters M16×1 female to NPT 1/4" female	CD, CP
8 890 006	2 Adapters M16×1 female to NPT 3/8" male	CD, CP
8 890 007	2 Adapters M16×1 female to NPT 3/8" female	CD, CP
8 890 008	2 Adapters M16×1 female to NPT 1/2" male	CD, CP
8 890 009	2 Adapters M16×1 female to NPT 1/2" female	CD, CP
8 890 010	2 Adapters M16×1 male to NPT 1/4" female	CD, CP
8 891 008	1 Adapter M16×1 male to BSP 1/2" female	CD, CP
8 891 009	1 Adapter M16×1 male to BSP 3/4" female	CD, CP
8 890 011	2 Adapters M16×1 female to tube 1/4" male	CD, CP
8 890 012	2 Adapters M16×1 female to tube 3/8" male	CD, CP
8 890 013	2 Adapters M16×1 female to tube 1/2" male	CD, CP
8 890 024	2 Adapters M16×1 female to M16×1 female	CD, CP

### Shut-off valves for loop circuit

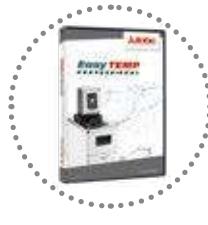
Order No.	Description	Suitable for
8 970 457	Shut-off valve (-30 °C ... +200 °C), M16×1	CD, CP
8 970 456	Shut-off valve (-10 °C ... +100 °C), M16×1	CD, CP

### Twin distributing adapters with barbed fittings

Order No.	Description	Suitable for
8 970 470	Twin distributing adapter with barbed fittings	Tubing 8 mm inner dia.
8 970 471	Twin distributing adapter with barbed fittings	Tubing 12 mm inner dia.
8 970 472	Twin distributing adapter with barbed fittings	Tubing 10 mm inner dia.
8 970 473	Twin distributing adapter M16×1 female to 2 × M16×1 male	CD, CP

## Software and hardware

for instrument control, data recording and visualization, interfaces



Order No.	Description	Suitable for
8 901 102	EasyTEMP Software (free of charge at <a href="http://www.julabo.com">www.julabo.com</a> )	CD, CP
8 901 105	EasyTEMP Professional Software, incl. USB-Dongle	CD, CP
9 900 110	USB interface cable 2 m, type A-B	CD, CP
9 900 112	USB 2.0 Repeater extension cable, length = 5 m	CD, CP
9 900 114	USB 2.0 Repeater extension cable, length = 10 m	CD, CP
8 980 073	RS232 interface cable, length 2,5 m. Interface cable RS232 9-pole/9-pole	CP
8 980 074	RS232 interface cable, length 5 m. Interface cable RS232 9-pole/9-pole.	CP

## Calibration and testing certificates



Order No.	Description	Suitable for
8 902 901	1-Point Manufacturer's calibration certificate	C, CD, CP
8 902 903	3-Point Manufacturer's calibration certificate	C, CD, CP
8 902 905	5-Point Manufacturer's calibration certificate	C, CD, CP
8 903 015	Manufacturer's testing certificate for JULABO units w/o cooling units	C, CD, CP

## IQ/OQ Documentation

for equipment qualification



Order No.	Description	Suitable for
2 310 110	IQ/OQ Documentation, Category 1	C, CD, CP

## Preventative Maintenance Contract



Order No.	Description	Suitable for
2 350 100	Preventative Maintenance Contract Standard includes the following services: Visual inspection, technical diagnostics, data analysis, BlackBox, testing of tube connections and bath fluid, thorough cleaning of condenser and other components, testing of temperature stability and sensor calibration, testing/measuring of pump and cooling capacity (depending on model) and firmware update (if no hardware adjustment is required)	C, CD, CP
2 350 110	Preventative Maintenance Contract Premium includes all services listed above as well as spare parts and labor required for installation or replacement	C, CD, CP

# The **Julabo** advantages at a glance.

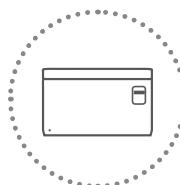
## JULABO temperature control solutions – high-precision and speed

JULABO products include high-quality temperature control solutions to cover the temperature range -95 °C to +400 °C.



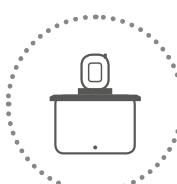
### Refrigerated Circulators

The JULABO Refrigerated Circulators are suitable for internal and external applications and can be used within the temperature range -95 °C to +200 °C.



### Water Baths and Shaking Water Baths

JULABO Water Baths and Shaking Water Baths can be used for a variety of applications within the temperature range +18 °C to +99.9 °C.



### Heating Circulators

Heating Circulators are available in various designs including Heating Immersion Circulators, Open Heating Bath Circulators, or Heating Circulators and cover the temperature range +20 °C to +300 °C.



### Additional Products

In addition, the JULABO product portfolio offers instruments for special requirements such as Calibration Baths, Visco Baths, Beer Forcing Test Baths, Immersion / Flow-Through Coolers, Temperature Controllers and Refrigerators for Chemicals.



### Highly Dynamic Temperature Control Systems

The Highly Dynamic Temperature Control Systems from JULABO can be used for demanding temperature applications ranging from -92 °C to +400 °C. The PRESTO series offers unique high-performance specifications to meet these requirements.



### Wireless Communication & Software Solutions

JULABO facilitates the automation of applications. The temperature control instruments can be comfortably controlled and monitored via PC.



### Recirculating Coolers

JULABO Recirculating Coolers are highly efficient and therefore offer an environmentally friendly and economic alternative to tap water cooling in the temperature range -25 °C to +130 °C.



### Accessories

The extensive range of instrument accessories ensures JULABO products are adaptable for research and industry use.

## Comprehensive service and on-site support

JULABO takes pride in offering customers expert advice for pairing the proper JULABO temperature control solution to their specific application. JULABO service and support options include installation and calibration, equipment qualification documentation and application training. These invaluable services ensure customer confidence in the operation and maintenance of any JULABO unit.

## Individual requirements – individual products

JULABO's wide product range offers a solution for almost any application. However, if a specific application needs more than a standard product can offer, the JULABO specialists will work out an individual solution with you.

**JULABO. Quality.**  
Highest quality standards to ensure a long product life.**Green technology.**  
Deliberately engineered with environmentally friendly materials and technologies.**Satisfied customers.**  
11 subsidiaries and more than 100 partners worldwide guarantee fast and qualified JULABO support.**100 % checked.**  
100 % testing. 100 % quality. Every JULABO product is shipped to customers after a successful final inspection.**Quick start.**  
Individual JULABO consultation and comprehensive manuals at your disposal.**Services 24/7.**  
Around the clock availability. You can find suitable accessories, data sheets, manuals, case studies and more at [www.julabo.com](http://www.julabo.com).

## Technical Specifications

Model	Order No.	Working temperature range °C	Display	Display resolution	Temperature control	Temperature stability °C	Heating capacity kW	Cooling unit	
									+20
CD-200F	9 012 701	-20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.22
CP-200F	9 013 701	-20 ... +200	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.2
CD-201F	9 012 702	-20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.22
CP-201F	9 013 702	-20 ... +200	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.2
CD-300F	9 012 703	-25 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.31
CP-300F	9 013 703	-25 ... +200	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.3
CD-600F	9 012 704	-35 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.6
CP-600F	9 013 704	-35 ... +200	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.6
CD-601F	9 012 705	-40 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.6
CP-601F	9 013 705	-35 ... +200	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.6
CD-900F	9 012 706	-38 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.9
CP-900F	9 013 706	-38 ... +200	LED	0.01 - 0.1	PID1	± 0.03	2	Air	0.9
CD-1000F	9 012 707	-40 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	Air	1
CP-1000F	9 013 707	-50 ... +200	LED	0.01 - 0.1	PID1	± 0.03	2	Air	1
CD-1001F	9 012 708	-38 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	Air	1
CP-1001F	9 013 708	-38 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	Air	1
C	9 011 000	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD	9 012 000	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CP	9 013 000	+20 ... +200	LED	0.01 - 0.1	PID1	± 0.02	2	-	-
C-BT5	9 011 305	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-BT9	9 011 309	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-BT19	9 011 319	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-BT27	9 011 327	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-B5	9 011 405	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-B13	9 011 413	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-B17	9 011 417	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-B19	9 011 419	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
C-B27	9 011 427	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-BT5	9 012 305	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-BT19	9 012 319	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-BT27	9 012 327	+20 ... +100	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-B5	9 012 405	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-B13	9 012 413	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-B17	9 012 417	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-B19	9 012 419	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-B27	9 012 427	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-B33	9 012 433	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-B39	9 012 439	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CD-BC4	9 012 504	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CP-BC4	9 013 504	+20 ... +200	LED	0.01 - 0.1	PID1	± 0.02	2	-	-
CD-BC6	9 012 506	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CP-BC6	9 013 506	+20 ... +200	LED	0.01 - 0.1	PID1	± 0.02	2	-	-
CD-BC12	9 012 512	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CP-BC12	9 013 512	+20 ... +200	LED	0.01 - 0.1	PID1	± 0.02	2	-	-
CD-BC26	9 012 526	+20 ... +150	LED	0.01 - 0.1	PID1	± 0.03	2	-	-
CP-BC26	9 013 526	+20 ... +200	LED	0.01 - 0.1	PID1	± 0.02	2	-	-

Unless otherwise indicated, all data relates to the operation at nominal voltage and frequency and +20 °C ambient temperature. Cooling capacity measured according to DIN 12876-2. Information regarding used refrigerants can be found at [www.julabo.com](http://www.julabo.com).

Cooling capacity (kW) at bath temperature in °C (Medium: Ethanol)						Type	Pump		Pump connections	Filling volume	Classification acc. DIN 12876-1
0	-10	-20	-30	-40			Pressure pump	Pressure bar			
0.17	0.13	0.06	-	-		Ⓐ	0.35	15	M16×1	3 ... 4	III (FL)
0.15	0.1	0.02	-	-		Ⓐ	0.1 ... 0.6	8 ... 23	M16×1	3 ... 4	III (FL)
0.16	0.12	0.06	-	-		Ⓐ	0.35	15	M16×1	3 ... 4	III (FL)
0.15	0.1	0.02				Ⓐ	0.1 ... 0.6	8 ... 23	M16×1	3 ... 4	III (FL)
0.28	0.2	0.11	-	-		Ⓐ	0.35	15	M16×1	3 ... 4	III (FL)
0.27	0.19	0.08	-	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	3 ... 4	III (FL)
0.53	0.35	0.22	0.1	-		Ⓐ	0.35	15	M16×1	5 ... 7.5	III (FL)
0.5	0.33	0.19	0.07	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	5 ... 7.5	III (FL)
0.5	0.35	0.2	0.07	0.01		Ⓐ	0.35	15	M16×1	8 ... 10	III (FL)
0.5	0.33	0.19	0.07	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	8 ... 10	III (FL)
0.8	0.55	0.35	0.15	0.02		Ⓐ	0.35	15	M16×1	21 ... 30	III (FL)
0.8	0.52	0.31	0.11	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	21 ... 30	III (FL)
0.9	0.73	0.5	0.32	0.15		Ⓐ	0.35	15	M16×1	5 ... 7.5	III (FL)
0.9	0.73	0.5	0.3	0.13		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	5 ... 7.5	III (FL)
0.9	0.63	0.35	0.13	-		Ⓐ	0.35	15	M16×1	42 ... 56	III (FL)
0.85	0.6	0.32	0.12	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	42 ... 56	III (FL)
-	-	-	-	-		Ⓑ	0.1	6	-	-	I (NFL)
-	-	-	-	-		Ⓐ	0.35	15	-	-	III (FL)
-	-	-	-	-		Ⓐ	0.1 ... 0.7	8 ... 27	-	-	III (FL)
-	-	-	-	-		Ⓑ	0.1	6	-	3.5 ... 5	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	6 ... 9	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	14 ... 19	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	20 ... 27	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	3.5 ... 5	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	9 ... 13	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	13 ... 17	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	14 ... 19	I (NFL)
-	-	-	-	-		Ⓑ	0.1	6	-	17 ... 27	I (NFL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	3.5 ... 5	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	14 ... 19	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	20 ... 27	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	3.5 ... 5	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	9 ... 13	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	13 ... 17	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	14 ... 19	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	17 ... 27	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	26 ... 39	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	35 ... 41	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	3 ... 4.5	III (FL)
-	-	-	-	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	3 ... 4.5	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	4.5 ... 6	III (FL)
-	-	-	-	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	4.5 ... 6	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	8.5 ... 12	III (FL)
-	-	-	-	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	8.5 ... 12	III (FL)
-	-	-	-	-		Ⓐ	0.35	15	M16×1	19 ... 26	III (FL)
-	-	-	-	-		Ⓐ	0.1 ... 0.7	8 ... 27	M16×1	19 ... 26	III (FL)

to	Power requirement V / Hz / A	USB interface	RS232 interface	Permissible ambient temperature °C	Usable bath opening W × L / D cm	Dimensions W × L × H cm	Weight net kg	Model
	230/50/12	yes	-	5 ... 40	13 × 15 / 15	23 × 39 × 65	26	<b>CD-200F</b>
	230/50/12	yes	yes	5 ... 40	13 × 15 / 15	23 × 39 × 65	25.7	<b>CP-200F</b>
	230/50/12	yes	-	5 ... 40	13 × 15 / 15	44 × 41 × 44	25	<b>CD-201F</b>
	230/50/12	yes	yes	5 ... 40	13 × 15 / 15	44 × 41 × 44	24.7	<b>CP-201F</b>
	230/50/12	yes	-	5 ... 40	13 × 15 / 15	24 × 42 × 66	28	<b>CD-300F</b>
	230/50/12	yes	yes	5 ... 40	13 × 15 / 15	24 × 42 × 66	27.7	<b>CP-300F</b>
	230/50/14	yes	-	5 ... 40	22 × 15 / 15	33 × 47 × 69	36	<b>CD-600F</b>
	230/50/14	yes	yes	5 ... 40	22 × 15 / 15	33 × 47 × 69	35.7	<b>CP-600F</b>
	230/50/14	yes	-	5 ... 40	22 × 15 / 20	36 × 46 × 74	38.5	<b>CD-601F</b>
	230/50/14	yes	yes	5 ... 40	22 × 15 / 20	36 × 46 × 74	38.5	<b>CP-601F</b>
	230/50/14	yes	-	5 ... 40	26 × 35 / 20	39 × 62 × 75	52	<b>CD-900F</b>
	230/50/14	yes	yes	5 ... 40	26 × 35 / 20	39 × 62 × 75	52	<b>CP-900F</b>
	230/50/14	yes	-	5 ... 40	18 × 13 / 15	42 × 49 × 70	51.5	<b>CD-1000F</b>
	230/50/14	yes	yes	5 ... 40	18 × 13 / 15	42 × 49 × 70	51.5	<b>CP-1000F</b>
	230/50/14	yes	-	5 ... 40	35 × 41 / 30	45 × 64 × 95	74	<b>CD-1001F</b>
	230/50/14	yes	yes	5 ... 40	35 × 41 / 30	45 × 64 × 95	73.7	<b>CP-1001F</b>
	230/50-60/9	-	-	5 ... 40	-	13.2 × 16 × 36.2	1.9	<b>C</b>
	230/50/10	yes	-	5 ... 40	-	13.2 × 16 × 36.2	2.6	<b>CD</b>
	230/50/10	yes	yes	5 ... 40	-	13.2 × 16 × 36.2	2.5	<b>CP</b>
	230/50-60/9	-	-	5 ... 40	15 × 15 / 15	23 × 38 × 38	4.8	<b>C-BT5</b>
	230/50-60/9	-	-	5 ... 40	23 × 15 / 15	32 × 38 × 38	3.9	<b>C-BT9</b>
	230/50-60/9	-	-	5 ... 40	30 × 35 / 15	38 × 58 × 38	7	<b>C-BT19</b>
	230/50-60/9	-	-	5 ... 40	30 × 35 / 20	38 × 58 × 43	7.2	<b>C-BT27</b>
	230/50-60/9	-	-	5 ... 40	15 × 15 / 15	23 × 38 × 41	7.3	<b>C-B5</b>
	230/50-60/9	-	-	5 ... 40	30 × 18 / 15	38 × 40 × 42	8.2	<b>C-B13</b>
	230/50-60/9	-	-	5 ... 40	30 × 18 / 20	38 × 40 × 47	9.3	<b>C-B17</b>
	230/50-60/9	-	-	5 ... 40	30 × 35 / 15	38 × 58 × 42	10.5	<b>C-B19</b>
	230/50-60/9	-	-	5 ... 40	30 × 35 / 20	38 × 58 × 47	12	<b>C-B27</b>
	230/50/10	yes	-	5 ... 40	15 × 15 / 15	23 × 38 × 38	5.7	<b>CD-BT5</b>
	230/50/10	yes	-	5 ... 40	30 × 35 / 15	38 × 58 × 38	8	<b>CD-BT19</b>
	230/50/10	yes	-	5 ... 40	30 × 35 / 20	38 × 58 × 43	8.1	<b>CD-BT27</b>
	230/50/10	yes	-	5 ... 40	15 × 15 / 15	23 × 38 × 41	8.2	<b>CD-B5</b>
	230/50/10	yes	-	5 ... 40	30 × 18 / 15	38 × 40 × 42	9.1	<b>CD-B13</b>
	230/50/10	yes	-	5 ... 40	30 × 18 / 20	38 × 40 × 47	9.3	<b>CD-B17</b>
	230/50/10	yes	-	5 ... 40	30 × 35 / 15	38 × 58 × 42	11.5	<b>CD-B19</b>
	230/50/10	yes	-	5 ... 40	30 × 35 / 20	38 × 58 × 47	13	<b>CD-B27</b>
	230/50/10	yes	-	5 ... 40	66 × 32 / 15	91 × 36 × 43	21	<b>CD-B33</b>
	230/50/10	yes	-	5 ... 40	33 × 30 / 30	54 × 34 × 57	18	<b>CD-B39</b>
	230/50/10	yes	-	5 ... 40	13 × 15 / 15	23 × 41 × 42	8.8	<b>CD-BC4</b>
	230/50/10	yes	yes	5 ... 40	13 × 15 / 15	23 × 41 × 42	8.5	<b>CP-BC4</b>
	230/50/10	yes	-	5 ... 40	13 × 15 / 20	24 × 44 × 47	10	<b>CD-BC6</b>
	230/50/10	yes	yes	5 ... 40	13 × 15 / 20	24 × 44 × 47	10	<b>CP-BC6</b>
	230/50/10	yes	-	5 ... 40	22 × 15 / 20	33 × 49 × 47	12.2	<b>CD-BC12</b>
	230/50/10	yes	yes	5 ... 40	22 × 15 / 20	33 × 49 × 47	12	<b>CP-BC12</b>
	230/50/10	yes	-	5 ... 40	26 × 35 / 20	39 × 62 × 48	19	<b>CD-BC26</b>
	230/50/10	yes	yes	5 ... 40	26 × 35 / 20	39 × 62 × 48	19	<b>CP-BC26</b>

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## Voltage Options

**Julabo**

Model	Order No.	230 V 50 Hz	Available voltage options / Heating capacity kW					
			208-230 V 60 Hz	208-230 V 50-60 Hz	100-115 V 50-60 Hz	115 V 60 Hz	100 V 50 - 60 Hz	200 V 50 - 60 Hz
<b>CD-200F</b>	9 012 701	2	1.6 - 2	-	-	1	0.8	-
<b>CD-201F</b>	9 012 702	2	1.6 - 2	-	-	1	0.8	-
<b>CD-300F</b>	9 012 703	2	1.6 - 2	-	-	1	0.8	-
<b>CD-600F</b>	9 012 704	2	1.6 - 2	-	-	1	0.8	-
<b>CD-601F</b>	9 012 705	2	1.6 - 2	-	-	1	0.8	-
<b>CD-900F</b>	9 012 706	2	1.6 - 2	-	-	1	-	1.5
<b>CD-1000F</b>	9 012 707	2	1.6 - 2	-	-	1	-	1.5
<b>CD-1001F</b>	9 012 708	2	1.6 - 2	-	-	-	-	1.5
<b>CP-200F</b>	9 013 701			1.6 - 2		1	0.8	-
<b>CP-201F</b>	9 013 702			1.6 - 2		1	0.8	-
<b>CP-300F</b>	9 013 703	2	1.6 - 2			1	0.8	-
<b>CP-600F</b>	9 013 704			1.6 - 2		1	0.8	1.5
<b>CP-601F</b>	9 013 705			1.6 - 2		1	0.8	1.5
<b>CP-900F</b>	9 013 706			1.6 - 2		1	-	1.5
<b>CP-1000F</b>	9 013 707			1.6 - 2		1	-	1.5
<b>CP-1001F</b>	9 013 708			1.6 - 2		-	-	1.5
<b>C</b>	9 011 000	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>CD</b>	9 012 000	2	1.6 - 2.	-	-	1	0.8	-
<b>CP</b>	9 013 000							
<b>C-BT5</b>	9 011 305	-	-	1.6 - 2	0.8 - 1-0	-	-	-
<b>C-BT9</b>	9 011 309	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>C-BT19</b>	9 011 319	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>C-BT27</b>	9 011 327	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>C-B5</b>	9 011 405	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>C-B13</b>	9 011 413	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>C-B17</b>	9 011 417	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>C-B19</b>	9 011 419	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>C-B27</b>	9 011 427	-	-	1.6 - 2	0.8 - 1	-	-	-
<b>CD-BT5</b>	9 012 305	2	1.6 - 2	-	-	1	0.8	-
<b>CD-BT19</b>	9 012 319	2	1.6 - 2	-	-	1	0.8	-
<b>CD-BT27</b>	9 012 327	2	1.6 - 2	-	-	1	0.8	-
<b>CD-B5</b>	9 012 405	2	1.6 - 2	-	-	1	0.8	-
<b>CD-B13</b>	9 012 413	2	1.6 - 2	-	-	1	0.8	-
<b>CD-B17</b>	9 012 417	2	1.6 - 2	-	-	1	0.8	-
<b>CD-B19</b>	9 012 419	2	1.6 - 2	-	-	1	0.8	-
<b>CD-B27</b>	9 012 427	2	1.6 - 2	-	-	1	0.8	-
<b>CD-B33</b>	9 012 433	2	1.6 - 2	-	-	1	0.8	-
<b>CD-B39</b>	9 012 439	2	1.6 - 2	-	-	1	0.8	-
<b>CD-BC4</b>	9 012 504	2	1.6 - 2	-	-	1	0.8	-
<b>CD-BC6</b>	9 012 506	2	1.6 - 2	-	-	1	0.8	-
<b>CD-BC12</b>	9 012 512	2	1.6 - 2	-	-	1	0.8	-
<b>CD-BC26</b>	9 012 526	2	1.6 - 2	-	-	1	0.8	-
<b>CP-BC4</b>	9 013 304			1.6 - 2	0.8 - 1			1.5
<b>CP-BC6</b>	9 013 306			1.6 - 2	0.8 - 1			1.5
<b>CP-BC12</b>	9 013 312			1.6 - 2	0.8 - 1			1.5
<b>CP-BC26</b>	9 013 326			1.6 - 2	0.8 - 1			1.5

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**Julabo**  
THE TEMPERATURE CONTROL COMPANY

**lesoshoppe.com**

# RECIRCULATING COOLERS/ CHILLERS



ENGLISH

## Product Characteristics & Functions

### Display



#### Easy to read

Large LED temperature display for actual value and setpoint (display resolution 0.1 °C)



#### A perfect view

Ample, easy to read VFD Comfort display for simultaneous display of 3 values, warning functions, high temperature cut-off, pump stages (display resolution 0.01 °C)



#### Filling level

Filling volume display



#### Clear

Comfortable, splash-proof control panel

### Temperature Control



#### Precise

PID Temperature control with set control parameters, temperature stability  $\pm 0.02 \dots \pm 0.2$  °C



#### For higher demands

PID Temperature control with drift compensation and adjustable parameters, improved temperature stability for external applications, temperature stability  $\pm 0.01$  °C internal,  $<\pm 0.1$  °C external



#### For perfect results

'Intelligent Cascade Control', automatic & self-optimizing adjustment of PID control parameters, temperature stability  $\pm 0.005$  °C internal,  $<\pm 0.05$  °C external



#### Full control

'Temperature Control Features' for individual optimization, access to all important control parameters, additional settings for band limit, limits, co-speed factor, etc.



#### Direct control from external application

External Pt100 sensor connection for highly precise measurement and control directly in the external application



#### Highest measuring accuracy

'Absolute Temperature Calibration' for compensation of a temperature difference, 3-point calibration

### Refrigeration Technology



#### Consistent cooling capacity

Easily removable venting grid for quick and easy dust removal



#### 100 % cooling capacity

'Active Cooling Control' for full utilization of the cooling capacity available throughout the entire working temperature range, fast cool-down even at higher temperatures

### Technical Features



#### Clever pump system

Reliable and consistent pump capacity, electronically adjustable pump stages



#### Serial connection

RS232 interface for PC connection, e.g. for data communication and recording of measured values



#### Easy program control

Integrated programmer for the execution of time and temperature dependent profiles, 1 temperature profile with 10 steps max., with real time clock



#### Connection of additional equipment

Stakei connections for solenoid valve, HSP booster pump and HST booster heater

### Warning & Safety Functions



#### Early warning system for low liquid level

Maximum safety for applications, optical and audible alarm, allows user to refill bath fluid before the unit shuts down



#### Early warning system for high/low temperature

Maximum safety for applications, optical and audible alarm convertible to automated cut-off function



#### Enhanced protective function

Maximum safety, adjustable high temperature cut-off or dry-running protection, additional display of setpoints permits easy and precise adjustments



#### For flammable bath fluids

Class III (FL) according to DIN 12876-1

The icons can be found on the intro pages of each product group.

## Recirculating Coolers / Chillers



AWC100 ..... 6



F Series ..... 7



FC Series ..... 14-17



Accessories ..... 22-29

Advantages at a Glance ..... 30-37

Technical Specifications ..... 38-41

# F/AWC Series



## F Series

-10 °C ... +40 °C

3 models with 250, 500, and 1000 W cooling capacity

The recirculating coolers of the F Series have very low procurement costs and convince with robust technology for continuous operation:

- Up to 1000 W of cooling capacity
- Compact design
- Easy access filling
- Level indicator
- May be used with water, water-glycol, JULABO Thermal G



## AWC100

+20 °C ... +40 °C

Air-to-water recirculating cooler



Ideal for simple cooling tasks:  
The AWC100 requires very little space and has a very low procurement cost.

# FL Series



## FL Series

-25 °C ... +40 °C

22 models with up to 20 kW of cooling capacity for laboratory and industrial applications

The recirculating coolers of the FL Series are suited for a wide range of cooling tasks:

- Up to 20 kW of cooling capacity
- Easy access filling from above
- Feed pressure indicator (from FL1201) and level indicator
- Large compensation volume
- Permissible return temperature up to +80 °C
- May be used with water, water-glycol, Thermal bath fluid



The removable venting grid makes it easy to clean the condenser. As a result, the instrument always delivers its full cooling capacity.

## FC Series



### FC Series

-25 °C ... +80 °C

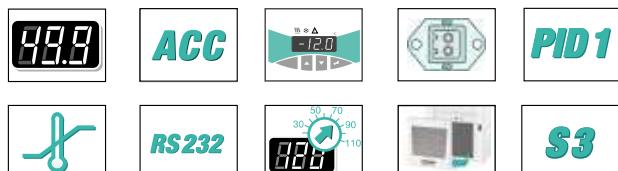
11 models for heating and cooling tasks with up to 2.5 kW of cooling capacity

FC models offer high temperature stability and are also equipped with integrated heating:

- Up to 2.5 kW of cooling capacity
- 1.2 kW of heating capacity
- Extended working temperatures up to +80 °C
- Adjustable feed/return temperature ratio
- Filling level indicator
- Two LED displays

#### Models FC1200T, FC1600T, FCW2500T

- External Pt100 sensor connection
- Analog connections for external programming and temperature recorder



on models FC1200T, FC1600T, FCW2500T



Sophisticated electronics with digital and analog connections for RS232, standby, alarm, external Pt100 sensor, temperature recorder, programming.



Please refer to the page 2 for a description of the icons shown above.

## SemiChill Series



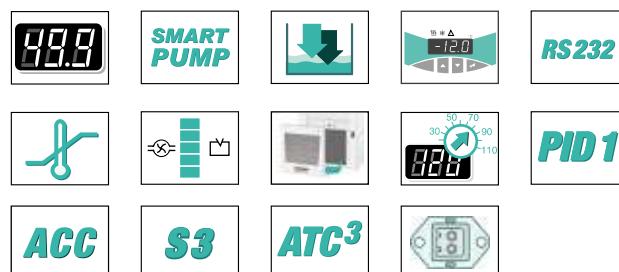
### SemiChill Series

-20 °C ... +130 °C

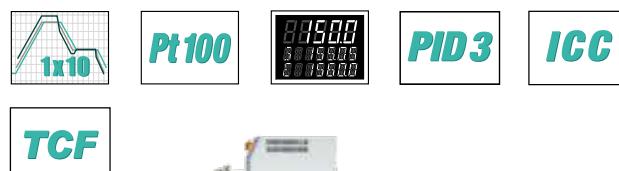
5 basic models for industrial applications up to 10 kW of cooling capacity, customizable

The SemiChill models are characterized by maximum reliability in continuous operation and under harsh environmental conditions. The modular concept permits custom configurations according to your requirements:

- Five basic models, individually configurable
- Up to 10 kW of cooling capacity
- Up to 12 kW of heating capacity
- Seal-free immersion pumps, maintenance-free and electronically adjustable
- Feed pressure indicator and level indicator
- Overload protection for pump motor and refrigeration unit



on models with professional electronics



Available with optional DI-filter or micro-filter housing.

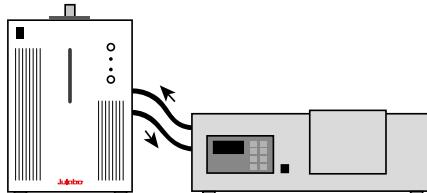
## Air-to-Water Recirculating Cooler AWC100

for working near ambient temperature

The AWC100 model requires very little space and has a very low procurement cost.

- Plug it in, switch it on, and you're ready to go
- Whisper quiet
- Saves energy (compressor-free design)
- Water loop cooled by fan air
- Uniform pump capacity
- Cooling performance adjustable in two steps
- Filling level indicator

Ambient temperature: +20 °C

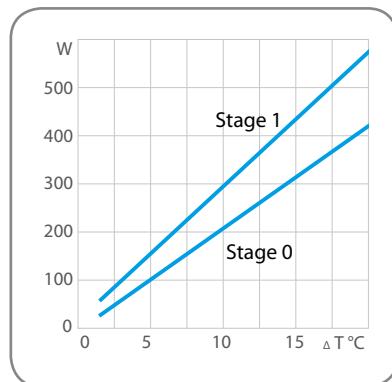


AWC100 is designed to cool water in closed loops. The unit permanently removes heat from water as it flows through the machine.

### Applications

Cooling of Peltier elements, particularly for automated analysis units and CCD cameras, polarimeters, refractometers, electrophoresis chambers, condensers for glass apparatus

### Example for determining cooling capacity



Ambient temperature: +20 °C

Return temperature: +30 °C

$\Delta T$ : +10 °C

Cooling capacity (stage 1): 300 W



### AWC100

Order No.	9 630 100		
Model	AWC100		
Working temperature range °C <sup>1)</sup>	+20 ... +40		
Temperature stability °C	-		
Cooling capacity <sup>1)</sup> W	+20 °C	+10 °C	+5 °C
Stage 0	400	220	120
Stage 1	550	300	180
Pump capacity l/min	2.9		
Flow rate / Pressure bar	0.2		
Filling volume liters	0.9		
Dimensions cm	W × L × H 20 × 34 × 30		

1) Cooling capacity depends on the temperature differential between the return flow and ambient environment.  
Included in delivery: 2 barbed fittings each for tubing 8 and 10 mm ID (pump connections M10x1 female)

## Compact Recirculating Coolers

for simple cooling tasks

JULABO F models require very little space and have very low procurement costs.

Recirculating coolers of the F Series are a great way to replace costly tap water and are ideal for basic cooling tasks.

- Environmentally-friendly operation with low energy consumption
- Compact design
- Splash-proof membrane keypad with LED temperature display
- Straightforward filling and draining
- Filling level indicator
- May be used with water, water-glycol, JULABO Thermal G

### For cooling of

- Rotary evaporators
- Kjeldahl instruments
- Measuring cells
- Automated analysis systems
- CCD cameras
- Polarimeters, refractometers
- Condensers for glass apparatus
- Calorimeters
- Soxhlet apparatuses

Included in delivery with F250: 2 barbed fittings each for tubing 8 and 10 mm ID (pump connections M10x1 female)

Included in delivery with F500, F1000: 2 barbed fittings each for tubing 8 and 12 mm ID (pump connections M16x1 male)



**F250**

Order No.	9 620 025		
Model	F250		
Working temperature range °C	-10 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 0.25	+10 °C 0.22	+5 °C 0.21
	0 °C 0.18	-5 °C 0.09	-10 °C -
Pump capacity l/min	15		
Flow rate / Pressure bar	0.35		
Filling volume liters	1.7 ... 2.6		
Dimensions cm	W × L × H 24 × 40 × 52		

**F500**

Order No.	9 620 050		
Model	F500		
Working temperature range °C	0 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 0.5	+10 °C 0.4	+5 °C 0.3
	0 °C 0.25	-5 °C -	-10 °C -
Pump capacity l/min	24		
Flow rate / Pressure bar	0.5		
Filling volume liters	5 ... 7.5		
Dimensions cm	W × L × H 37.5 × 44 × 59		

**F1000**

Order No.	9 620 100		
Model	F1000		
Working temperature range °C	0 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 1	+10 °C 0.7	+5 °C 0.55
	0 °C 0.35	-5 °C -	-10 °C -
Pump capacity l/min	23		
Flow rate / Pressure bar	1		
Filling volume liters	7 ... 9.5		
Dimensions cm	W × L × H 37.5 × 49 × 64		

## FL Recirculating Coolers

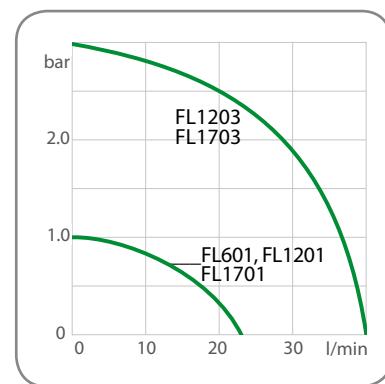
compact models with up to 1.7 kW of cooling capacity for installation below a lab bench

The compact FL models are suited for a wide variety of cooling tasks. Installation under a lab bench saves valuable space.  
2 variants: Air-cooled (FL) and water-cooled (FLW).

- Easy filling from above
- Feed pressure indicator (FL1201 and above) and level indicator (all models)
- Large compensation volume
- Circulating pumps designed for continuous operation
- Permissible return temperature up to +80 °C
- Low liquid level protection with visual and acoustic signals
- May be used with water, water-glycol, Thermal bath fluid
- Overload protection for pump motor and cooling machine

### Pump capacity

Bath fluid: water



Included in delivery: 2 barbed fittings each for tubing 8 and 12 mm ID (pump connections M16x1 male)  
2 barbed fittings for tubing ¾" ID with models FL1203 and FL(W)1703 (pump connections G ¾" male)



**FL300**

Order No.	<b>9 660 003</b>		
Model	<b>FL300</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 0.3	+10 °C 0.25	0 °C 0.2
	-5 °C 0.18	-10 °C 0.15	-20 °C 0.1
Pump capacity l/min	15		
Flow rate / Pressure bar	0.35		
Filling volume liters	3 ... 4.5		
Dimensions cm	W × L × H 25 × 50 × 60		



**FL601**

Order No.	<b>9 661 006</b>		
Model	<b>FL601</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 0.6	+10 °C 0.5	0 °C 0.4
	-5 °C 0.37	-10 °C 0.33	-20 °C 0.2
Pump capacity l/min	23		
Flow rate / Pressure bar	1		
Filling volume liters	5.5 ... 8		
Dimensions cm	W × L × H 32 × 50 × 62		



**FL1201**

Order No.	<b>9 661 012</b>		
Model	<b>FL1201</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 1.2	+10 °C 1	0 °C 0.9
	-5 °C 0.75	-10 °C 0.6	-20 °C 0.3
Pump capacity l/min	23		
Flow rate / Pressure bar	1		
Filling volume liters	12 ... 17		
Dimensions cm	W × L × H 50 × 76 × 64		



### FLW1701

<b>Order No.</b>	<b>9 671 017</b>		
<b>Model</b>	<b>FLW1701</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 1.7 -5 °C 0.98	+10 °C 1.5 -10 °C 0.85	0 °C 1.1 -20 °C 0.4
Pump capacity l/min	23		
Flow rate / Pressure bar	1		
Filling volume liters	12 ... 17		
Dimensions cm	W × L × H 50 × 76 × 64		



### FLW1703

<b>Order No.</b>	<b>9 673 017</b>		
<b>Model</b>	<b>FLW1703</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 1.7 -5 °C 0.88	+10 °C 1.4 -10 °C 0.75	0 °C 1 -20 °C 0.3
Pump capacity l/min	40		
Flow rate / Pressure bar	0.5 - 3		
Filling volume liters	12 ... 17		
Dimensions cm	W × L × H 50 × 76 × 64		



### FL1203

<b>Order No.</b>	<b>9 663 012</b>		
<b>Model</b>	<b>FL1203</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 1.2 -5 °C 0.65	+10 °C 0.9 -10 °C 0.5	0 °C 0.8 -20 °C 0.2
Pump capacity l/min	40		
Flow rate / Pressure bar	0.5 - 3		
Filling volume liters	12 ... 17		
Dimensions cm	W × L × H 50 × 76 × 64		



### FL1701

<b>Order No.</b>	<b>9 661 017</b>		
<b>Model</b>	<b>FL1701</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 1.7 -5 °C 0.98	+10 °C 1.5 -10 °C 0.85	0 °C 1.1 -20 °C 0.4
Pump capacity l/min	23		
Flow rate / Pressure bar	1		
Filling volume liters	12 ... 17		
Dimensions cm	W × L × H 50 × 76 × 64		



### FL1703

<b>Order No.</b>	<b>9 663 017</b>		
<b>Model</b>	<b>FL1703</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 1.7 -5 °C 0.88	+10 °C 1.4 -10 °C 0.75	0 °C 1 -20 °C 0.3
Pump capacity l/min	40		
Flow rate / Pressure bar	0.5 - 3		
Filling volume liters	12 ... 17		
Dimensions cm	W × L × H 50 × 76 × 64		

## FL Recirculating Coolers

powerful models with up to 4.3 kW of cooling capacity,  
tower version

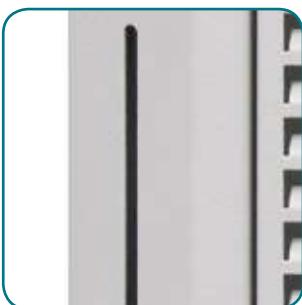
The FL models shown here have higher cooling capacity, powerful circulating pumps, and internal bath volumes of up to 30 liters. 2 variants: Air-cooled (FL) and water-cooled (FLW).

- Powerful circulating pumps up to 60 l/min; 6 bar
- By-pass valve to adjust pump pressure
- Rollers make it easy to move the units
- Early warning function when condenser is dirty
- Overload protection for pump motor and cooling machine
- Stainless steel bath tank
- BlackBox function with error memory for remote diagnosis
- Stakei connection for connecting a solenoid valve

### Applications

Rotary evaporators, bio-reactors/fermenters, Soxhlet apparatuses, distillation systems, vacuum systems, gas chromatographs, spectrometers, semiconductor applications, metering and adhesive technology, diffusion pumps, mass spectrometers, electron microscopes

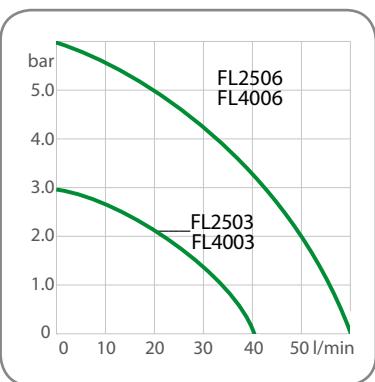
**Filling level indicator**  
for all models



**Practical recessed grip**



**Pump capacity**  
Bath fluid: water



Included in delivery: 2 barbed fittings for tubing 3/4" ID with models FL/FLW2503 and FL/FLW4003 (pump connections G 3/4" male). 2 barbed fittings for tubing 1" ID with models FL/FLW2506 and FL/FLW4006 (pump connections G 1 1/4" male)



**FLW2503**

<b>Order No.</b>	<b>9 673 025</b>												
<b>Model</b>	<b>FLW2503</b>												
Working temperature range °C	-20 ... +40												
Temperature stability °C	±0.5												
Cooling capacity kW	<table border="1"> <tr> <td>+20 °C</td> <td>+10 °C</td> <td>0 °C</td> </tr> <tr> <td>2.7</td> <td>2.5</td> <td>1.7</td> </tr> </table> <table border="1"> <tr> <td>-5 °C</td> <td>-10 °C</td> <td>-20 °C</td> </tr> <tr> <td>1.35</td> <td>1</td> <td>0.4</td> </tr> </table>	+20 °C	+10 °C	0 °C	2.7	2.5	1.7	-5 °C	-10 °C	-20 °C	1.35	1	0.4
+20 °C	+10 °C	0 °C											
2.7	2.5	1.7											
-5 °C	-10 °C	-20 °C											
1.35	1	0.4											
Pump capacity l/min	40												
Flow rate / Pressure bar	0.5 - 3												
Filling volume liters	24 ... 30												
Dimensions cm	W × L × H 60 × 76 × 115												



**FL2503**

<b>Order No.</b>	<b>9 663 025</b>												
<b>Model</b>	<b>FL2503</b>												
Working temperature range °C	-20 ... +40												
Temperature stability °C	±0.5												
Cooling capacity kW	<table border="1"> <tr> <td>+20 °C</td> <td>+10 °C</td> <td>0 °C</td> </tr> <tr> <td>2.5</td> <td>2.2</td> <td>1.5</td> </tr> </table> <table border="1"> <tr> <td>-5 °C</td> <td>-10 °C</td> <td>-20 °C</td> </tr> <tr> <td>1.35</td> <td>1.2</td> <td>0.55</td> </tr> </table>	+20 °C	+10 °C	0 °C	2.5	2.2	1.5	-5 °C	-10 °C	-20 °C	1.35	1.2	0.55
+20 °C	+10 °C	0 °C											
2.5	2.2	1.5											
-5 °C	-10 °C	-20 °C											
1.35	1.2	0.55											
Pump capacity l/min	40												
Flow rate / Pressure bar	0.5 - 3												
Filling volume liters	24 ... 30												
Dimensions cm	W × L × H 60 × 76 × 115												



## FLW2506

<b>Order No.</b>	<b>9 676 025</b>		
<b>Model</b>	<b>FLW2506</b>		
Working temperature range °C	-15 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 2.5	+10 °C 1.9	0 °C 1
	-5 °C 0.65	-10 °C 0.3	-20 °C -
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	24 ... 30		
Dimensions cm	W × L × H 60 × 76 × 115		

## FLW4003

<b>Order No.</b>	<b>9 673 040</b>		
<b>Model</b>	<b>FLW4003</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 4.3	+10 °C 3	0 °C 2.2
	-5 °C 1.75	-10 °C 1.3	-20 °C 0.45
Pump capacity l/min	40		
Flow rate / Pressure bar	0.5 - 3		
Filling volume liters	24 ... 30		
Dimensions cm	W × L × H 60 × 76 × 115		

## FLW4006

<b>Order No.</b>	<b>9 676 040</b>		
<b>Model</b>	<b>FLW4006</b>		
Working temperature range °C	-15 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 4	+10 °C 3	0 °C 1.7
	-5 °C 1.20	-10 °C 0.7	-20 °C -
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	24 ... 30		
Dimensions cm	W × L × H 60 × 76 × 115		



## FL2506

<b>Order No.</b>	<b>9 666 025</b>		
<b>Model</b>	<b>FL2506</b>		
Working temperature range °C	-15 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 2.5	+10 °C 1.9	0 °C 1
	-5 °C 0.65	-10 °C 0.3	-20 °C -
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	24 ... 30		
Dimensions cm	W × L × H 60 × 76 × 115		

## FL4003

<b>Order No.</b>	<b>9 663 040</b>		
<b>Model</b>	<b>FL4003</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 4	+10 °C 3.4	0 °C 2.4
	-5 °C 1.95	-10 °C 1.5	-20 °C 0.65
Pump capacity l/min	40		
Flow rate / Pressure bar	0.5 - 3		
Filling volume liters	24 ... 30		
Dimensions cm	W × L × H 60 × 76 × 115		

## FL4006

<b>Order No.</b>	<b>9 666 040</b>		
<b>Model</b>	<b>FL4006</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 4	+10 °C 2.9	0 °C 1.9
	-5 °C 1.40	-10 °C 0.9	-20 °C 0.05
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	24 ... 30		
Dimensions cm	W × L × H 60 × 76 × 115		

## FL Recirculating Coolers

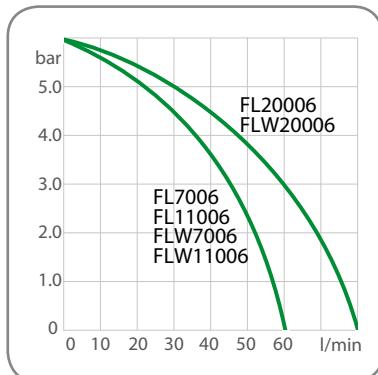
very powerful units, up to 20 kW of cooling capacity

The powerful FL models are suitable for a wide range of cooling tasks in industrial environments, such as removal of large process heat. 2 variants: Air-cooled (FL) and water-cooled (FLW).

- High cooling capacity of up to 20 kW
- Powerful circulating pumps
- Large power reserves with all applications
- Early warning function when condenser is dirty
- Low water consumption (on FLW models)
- Overload protection for pump motor and cooling machine
- Stainless steel bath tank
- BlackBox function with error memory for remote diagnosis
- Stakei connection for connecting a solenoid valve or a booster pump

Included in delivery: 2 Barbed fittings for tubing 1" ID  
(pump connections G 1¼" male)

**Pump capacity**  
Bath fluid: water



**Rollers add flexibility**



**Drain tap located behind removable venting grid**



**Pump pressure indicator for models from FL1201**



**Pump pressure adjustable for models from 3 bar**



## FLW7006

<b>Order No.</b>	<b>9 676 070</b>		
<b>Model</b>	<b>FLW7006</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 7.4	+10 °C 7	0 °C 5.5
	-5 °C 4.30	-10 °C 3.1	-20 °C 1.3
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	39 ... 47		
Dimensions cm	W × L × H 78 × 85 × 148		

## FLW11006

<b>Order No.</b>	<b>9 676 110</b>		
<b>Model</b>	<b>FLW11006</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 11.5	+10 °C 9	0 °C 7.3
	-5 °C 6.05	-10 °C 4.8	-20 °C 2.7
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	39 ... 47		
Dimensions cm	W × L × H 78 × 85 × 148		

## FLW20006

<b>Order No.</b>	<b>9 676 200</b>		
<b>Model</b>	<b>FLW20006</b>		
Working temperature range °C	-25 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 20	+10 °C 15	0 °C 12
	-5 °C 9.50	-10 °C 7	-20 °C 3
Pump capacity l/min	80		
Flow rate / Pressure bar	0.8 - 6		
Filling volume liters	15 ... 37		
Dimensions cm	W × L × H 95 × 115 × 161		



## FL7006

<b>Order No.</b>	<b>9 666 070</b>		
<b>Model</b>	<b>FL7006</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 7	+10 °C 6.4	0 °C 5.1
	-5 °C 4.05	-10 °C 3	-20 °C 1.55
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	39 ... 47		
Dimensions cm	W × L × H 78 × 85 × 148		

## FL11006

<b>Order No.</b>	<b>9 666 110</b>		
<b>Model</b>	<b>FL11006</b>		
Working temperature range °C	-20 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 11	+10 °C 9	0 °C 7.5
	-5 °C 6.25	-10 °C 5	-20 °C 3
Pump capacity l/min	60		
Flow rate / Pressure bar	0.5 - 6		
Filling volume liters	39 ... 47		
Dimensions cm	W × L × H 78 × 85 × 148		

## FL20006

<b>Order No.</b>	<b>9 666 200</b>		
<b>Model</b>	<b>FL20006</b>		
Working temperature range °C	-25 ... +40		
Temperature stability °C	±0.5		
Cooling capacity kW	+20 °C 20	+10 °C 15	0 °C 10
	-5 °C 8	-10 °C 6	-20 °C 2.5
Pump capacity l/min	80		
Flow rate / Pressure bar	0.8 - 6		
Filling volume liters	15 ... 37		
Dimensions cm	W × L × H 95 × 115 × 161		

### FC Recirculating Coolers

for heating and cooling tasks

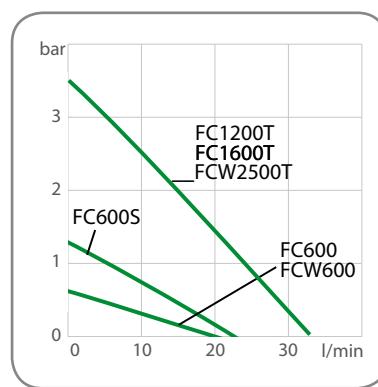
FC models offer high temperature stability and feature integrated heating in addition.

2 variants: Air-cooled (FC) and water-cooled (FCW).

- Extended working temperatures up to +80 °C
- Two LED displays
- Adjustable feed/return temperature ratio
- Filling level indicator

#### Pump capacity

Bath fluid: water



### What cooling capacity do you need for your application?

The JULABO temperature control specialists can already calculate an ideal cooling capacity for you based on little data. JULABO merely needs three values, which you can determine easily for your application in most cases:

| 1  
Temperature of the cooling water prior to entering the application

| 2  
Temperature of the cooling water after exiting the application

| 3  
Cooling water flow rate in liters per minute

Send these three values to [info.de@julabo.com](mailto:info.de@julabo.com). You will promptly receive a recommendation regarding the most suitable JULABO recirculating cooler.





### FCW600

<b>Order No.</b>	<b>9 601 060</b>		
<b>Model</b>	<b>FCW600</b>		
Working temperature range °C	-20 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
	+20 °C 0.6 0 °C 0.34	+10 °C 0.47 -10 °C 0.21	+5 °C 0.4 -20 °C -
Cooling capacity kW			
Pump capacity l/min	20		
Flow rate / Pressure bar	0.5		
Filling volume liters	6 ... 8		
Dimensions cm	W × L × H 35 × 54 × 49		



### FCW600S

<b>Order No.</b>	<b>9 601 063</b>		
<b>Model</b>	<b>FCW600S</b>		
Working temperature range °C	-10 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
	+20 °C 0.5 0 °C 0.235	+10 °C 0.37 -10 °C 0.1	+5 °C 0.3 -20 °C -
Cooling capacity kW			
Pump capacity l/min	22		
Flow rate / Pressure bar	1.2		
Filling volume liters	6 ... 8		
Dimensions cm	W × L × H 35 × 54 × 49		



### FC600

<b>Order No.</b>	<b>9 600 060</b>		
<b>Model</b>	<b>FC600</b>		
Working temperature range °C	-20 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
	+20 °C 0.6 0 °C 0.34	+10 °C 0.47 -10 °C 0.21	+5 °C 0.4 -20 °C -
Cooling capacity kW			
Pump capacity l/min	20		
Flow rate / Pressure bar	0.5		
Filling volume liters	6 ... 8		
Dimensions cm	W × L × H 35 × 54 × 49		



### FC600S

<b>Order No.</b>	<b>9 600 063</b>		
<b>Model</b>	<b>FC600S</b>		
Working temperature range °C	-10 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
	+20 °C 0.5 0 °C 0.235	+10 °C 0.37 -10 °C 0.1	+5 °C 0.3 -20 °C -
Cooling capacity kW			
Pump capacity l/min	22		
Flow rate / Pressure bar	1.2		
Filling volume liters	6 ... 8		
Dimensions cm	W × L × H 35 × 54 × 49		

Included in delivery: 2 barbed fittings each for tubing 8 and 12 mm inner dia. (pump connections M16x1 male)

## FC Recirculating Coolers

for heating and cooling tasks

FC models offer high temperature stability and feature integrated heating in addition.

2 variants: Air-cooled (FC) and water-cooled (FCW).

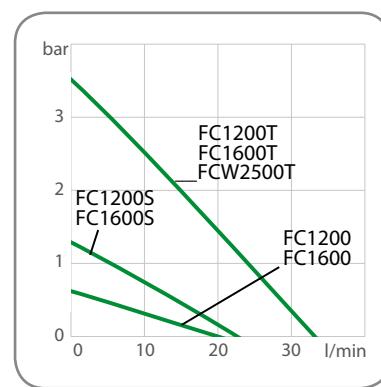
- Models starting from a cooling capacity of 1.1 kW at +20 °C
- Heating capacity 1.2 kW

### Models FC1200T, FC1600T, FCW2500T

External Pt100 sensor connection  
Analog connections for external programming  
and temperature recorder

### Pump capacity

Bath fluid: water

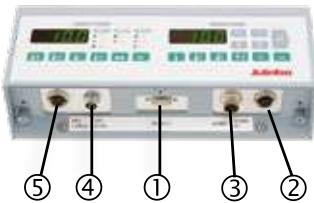


Included in delivery: 2 barbed fittings each for tubing 8 and 12 mm ID (pump connections M16x1 male)

	<b>FC1200</b>		<b>FC1200S</b>		<b>FC1200T</b>
<b>Order No.</b>	<b>9 600 120</b>	<b>Order No.</b>	<b>9 600 123</b>	<b>Order No.</b>	<b>9 600 126</b>
<b>Model</b>	<b>FC1200</b>	<b>Model</b>	<b>FC1200S</b>	<b>Model</b>	<b>FC1200T</b>
Working temperature range °C	-20 ... +80	Working temperature range °C	-15 ... +80	Working temperature range °C	-10 ... +80
Temperature stability °C	±0.2	Temperature stability °C	±0.2	Temperature stability °C	±0.2
Heating capacity kW	1.2	Heating capacity kW	1.2	Heating capacity kW	1.2
	+20 °C    +10 °C    +5 °C		+20 °C    +10 °C    +5 °C		+20 °C    +10 °C    +5 °C
Cooling capacity kW	1.3    0.95    0.75	Cooling capacity kW	1.2    0.85    0.65	Cooling capacity kW	1.1    0.75    0.55
	0 °C    -10 °C    -20 °C		0 °C    -10 °C    -20 °C		0 °C    -10 °C    -20 °C
0.66	0.37	0.555	0.26	0.45	0.15
Pump capacity l/min	20	Pump capacity l/min	22	Pump capacity l/min	28
Flow rate / Pressure bar	0.5	Flow rate / Pressure bar	1.2	Flow rate / Pressure bar	3.5
Filling volume liters	8 ... 11	Filling volume liters	8 ... 11	Filling volume liters	8 ... 11
Dimensions cm	W x L x H 46 x 61 x 49	Dimensions cm	W x L x H 46 x 61 x 49	Dimensions cm	W x L x H 46 x 61 x 49

## Digital/analog connections

- ① RS232 interface
- ② Standby input
- ③ Alarm output



## FC1200T, FC1600T, FCW2500T offer in addition:

- ④ External Pt100 sensor
- ⑤ External programming,  
Temperature recorder



## FCW2500T

Order No.	9 601 256		
Model	FCW2500T		
Working temperature range °C	-25 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
Cooling capacity kW	+20 °C 2.5 0 °C 1.4	+10 °C 2 -10 °C 0.8	+5 °C 1.8 -20 °C 0.25
Pump capacity l/min	28		
Flow rate / Pressure bar	3.5		
Filling volume liters	8 ... 11		
Dimensions cm	W × L × H 46 × 61 × 49		



## FC1600

Order No.	9 600 160		
Model	FC1600		
Working temperature range °C	-20 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
Cooling capacity kW	+20 °C 1.65 0 °C 0.86	+10 °C 1.25 -10 °C 0.47	+5 °C 1 -20 °C -
Pump capacity l/min	20		
Flow rate / Pressure bar	0.5		
Filling volume liters	8 ... 11		
Dimensions cm	W × L × H 46 × 61 × 49		

## FC1600S

Order No.	9 600 163		
Model	FC1600S		
Working temperature range °C	-15 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
Cooling capacity kW	+20 °C 1.55 0 °C 0.755	+10 °C 1.15 -10 °C 0.36	+5 °C 0.9 -20 °C -
Pump capacity l/min	22		
Flow rate / Pressure bar	1.2		
Filling volume liters	8 ... 11		
Dimensions cm	W × L × H 46 × 61 × 49		

## FC1600T

Order No.	9 600 166		
Model	FC1600T		
Working temperature range °C	-15 ... +80		
Temperature stability °C	±0.2		
Heating capacity kW	1.2		
Cooling capacity kW	+20 °C 1.45 0 °C 0.65	+10 °C 1.05 -10 °C 0.25	+5 °C 0.8 -20 °C -
Pump capacity l/min	28		
Flow rate / Pressure bar	3.5		
Filling volume liters	8 ... 11		
Dimensions cm	W × L × H 46 × 61 × 49		

## SemiChill Recirculating Coolers

for highest requirements in industrial environments

The SemiChill models are characterized by maximum reliability in continuous operation and under harsh environmental conditions. All parts in contact with the bath fluid are made of stainless steel or high grade plastic. The modular design permits custom configurations according to your requirements.

- Five basic models, individually configurable
- High cooling capacity and strong circulating pumps
- Optional with integrated heater with a heating capacity of up to 12 kW
- Seal-free immersion pumps, maintenance-free and electronically adjustable
- Pressure and filling level indicator
- Sealed filling port (70 mm Ø)
- Overload protection for pump motor and cooling machine
- Pump connections: NPT ¾" male

### Models with type designation

"a" = air cooling

"w" = water cooling

### Applications

Semiconductor industry (etching processes, stainless steel chucks, PVD, sputtering, wet benches), packaging industry, plastics industry, metering and adhesive technology, jacketed reaction vessels, kilo labs, pilot plants



**SC2500a**

Order No.	Order index on page 21		
Model	SC2500a		
Working temperature range °C <sup>1)</sup>	-20 ... +80		
Temperature stability °C	±0.1		
Cooling capacity kW	+20 °C 2.5	0 °C 1.5	-10 °C 0.9
Pump capacity l/min		Order index on page 21	
Flow rate / Pressure bar			
Filling volume liters	21 ... 33		
Dimensions cm	W × L × H 49 × 62 × 105		



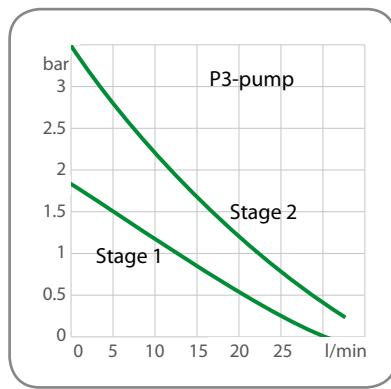
**SC2500w**

Order No.	Order index on page 21		
Model	SC2500w		
Working temperature range °C <sup>1)</sup>	-20 ... +80		
Temperature stability °C	±0.1		
Cooling capacity kW	+20 °C 2.5	0 °C 1.5	-10 °C 0.9
Pump capacity l/min		Order index on page 21	
Flow rate / Pressure bar			
Filling volume liters	21 ... 33		
Dimensions cm	W × L × H 49 × 62 × 105		

<sup>1)</sup> Maximum working temperature range (standard working temperature range +5 ... +35 °C)

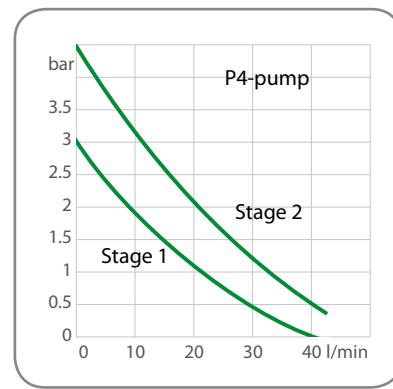
## Pump capacity P3

Bath fluid: water



## Pump capacity P4

Bath fluid: water



**SC5000a**

Order No. Order index on page 21

**Model** SC5000a

Working temperature range °C <sup>1)</sup> -20 ... +130

Temperature stability °C ±0.1

Cooling capacity kW +20 °C 0 °C -10 °C  
5.0 2.5 1.2

Pump capacity Flow rate / Pressure l/min bar Order index on page 21

Filling volume liters 43 ... 60

Dimensions cm W × L × H  
59 × 67 × 112

**SC5000w**

Order No. Order index on page 21

**Model** SC5000w

Working temperature range °C <sup>1)</sup> -20 ... +130

Temperature stability °C ±0.1

Cooling capacity kW +20 °C 0 °C -10 °C  
5.0 2.5 1.2

Pump capacity Flow rate / Pressure l/min bar Order index on page 21

Filling volume liters 43 ... 60

Dimensions cm W × L × H  
59 × 67 × 112

**SC10000w**

Order No. Order index on page 21

**Model** SC10000w

Working temperature range °C <sup>1)</sup> -20 ... +130

Temperature stability °C ±0.1

Cooling capacity kW +20 °C 0 °C -10 °C  
10.0 5.0 2.5

Pump capacity Flow rate / Pressure l/min bar Order index on page 21

Filling volume liters 43 ... 60

Dimensions cm W × L × H  
59 × 67 × 112

## Operating and control electronics

Equipment features



Multi-Display (LED) temperature display	•	
VFD Comfort display with simultaneous display of 3 values		•
Keypad, splash-proof	•	•
PID temperature control	•	•
3-point calibration	•	•
Pump capacity adjustable in stages	•	•
RS232 interface	•	•
Stakei connections for power supply (e.g. shut-off valve)	•	•
Early warning system for low level, high and low temperature limits	•	•
High-temperature cut-off adjustable via display	•	•
Low liquid level protection with cut-off function	•	•
Classification III (DIN 12876-1)	•	•
Remote diagnosis function via integrated <i>BlackBox</i>	•	•
Connector for external Pt100 sensor for measuring and controlling the external system	•	
Integrated programmer with real time clock for 1x10 program steps	•	
Quantitative conductivity measurement and display, range 0.5...5 Ω/cm	•	
Flow measurement and status display (pre-set limit value)*	•	

### Options for **Professional** electronics

Freely scalable analog interfaces (E-PROG input, standby input, alarm output)	--	Optional
RS485 interface	--	Optional

\***Professional** electronics with analog connections required. Flow sensor not included.

## Further options for working temperature, pump capacity, and heating

Model	Working temperature range				Circulating pumps		Heaters			
	Standard +5 °C ... +35 °C	Low temp -20 °C ... +35 °C	Low/high temp I -20 °C ... +80 °C	Low/high temp II -20 °C ... +130 °C	P3 33 l/min 3.5 bar	P4 43 l/min 4.3 bar	H0 no heater	H1 1 kW	H5 5 kW	H12 12 kW
<b>SC2500a</b>	✓				✓	--	✓			
<b>SC2500w</b>	✓	Optional	Optional	--	✓	--	✓	Optional	--	--
<b>SC5000a</b>	✓				✓	Optional <sup>1)</sup>	✓	--	Optional	Optional
<b>SC5000w</b>										
<b>SC10000w</b>										

✓ This feature is already included with the basic model

<sup>1)</sup> Cooling capacity reduced by 0.2 kW

### Filter housings

Please specify the desired filter option when ordering. Retrofitting is not possible. Housing is mounted on the right side of the unit.

- D1** DI-filter housing, plastic (up to +35 °C), incl. cartridge
- D2** DI-filter housing, stainless steel (up to +90 °C), incl. cartridge
- M1** Micro-filter housing, plastic (up to +35 °C), w/o cartridge
- M2** Micro-filter housing, stainless steel (up to +130 °C), w/o cartridge

### Filter housings for DI-filter and micro-filter (optional)



## Order index

for your custom unit configuration

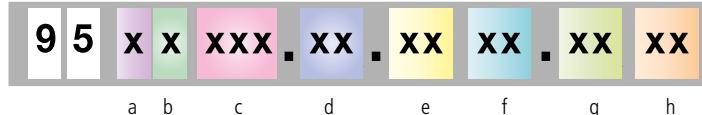
Combine one of the five basic models with options of your choice.  
Please use the order index shown below to create the order number  
for your unit. The following example is for model SC5000a:

### Custom unit configuration

- |                       |                    |
|-----------------------|--------------------|
| > Control electronics | > Interfaces       |
| > Pump capacity       | > Heating capacity |
| > Working temperature | > Filter housings  |



9 5 2 1 050 07 P3 H0 D0 M1



a b c d e f g h



#### Keypad and control electronics

- 0 Eco
- 2 Professional
- 3 Professional with analog interface module
- 7 Professional with RS485 interface



#### Working temperature range

- 0 Standard (+5 ... +35 °C)
- 1 LowTemp (-20 ... +35 °C)
- 2 Low/HighTemp I (-20 ... +80 °C)
- 3 Low/HighTemp II (-20 ... +130 °C)



#### Basic model

- 025 SC2500a
- 026 SC2500w
- 050 SC5000a
- 051 SC5000w
- 101 SC10000w



#### Voltage version<sup>1)</sup>

- 03 230 V / 50 Hz
- 07 400 V (3 Ph.) / 50 Hz
- 13 208-230 V / 60 Hz
- 16 208-230 V (3 Ph.) / 60 Hz



#### Circulating pump (pump type, pump capacity)

- P3 33 l/min. - 3.5 bar max.
- P4 43 l/min. - 4.3 bar max.



#### Integrated heater

- H0 Without heater
- H1 Heating capacity 1 kW
- H5 Heating capacity 5 kW
- H12 Heating capacity 12 kW



#### DI-filter housing

- D0 Without DI-filter housing
- D1 DI-filter housing, plastic  
(up to +35 °C max.)
- D2 DI-filter housing, stainless steel  
(up to +90 °C max.)



#### Micro-filter housing

- M0 Without micro-filter housing
- M1 Micro-filter housing, plastic  
(up to +35 °C max.)
- M2 Micro-filter housing, stainless steel  
(up to +130 °C max.)

<sup>1)</sup>Voltage version

SC2500a, SC2500w    SC5000a, SC5000w, SC10000w  
230 V / 50 Hz or    400 V (3 ph.) / 50 Hz or  
208-230 V / 60 Hz    208-230 V (3 ph.) / 60 Hz

## Accessories

### JULABO Thermal Bath Fluids

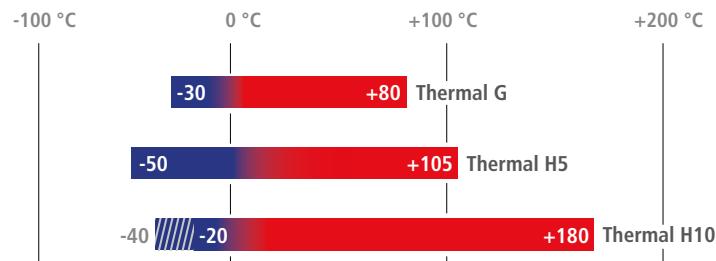
JULABO Thermal bath fluids have been carefully chosen after long-term testing. They are ideally suited for all of your temperature control applications guaranteeing safe and reliable operation.

Choosing the proper bath fluid is critical for the results in temperature control. The viscosity, oxidation and heat transfer characteristics of the Thermal fluids are specifically matched with each JULABO temperature control instrument.

#### Advantages

- Wide temperature ranges
- Low viscosity
- High stability
- Good heat conductivity
- Minimum odor
- Low corrosion tendency
- Low toxicity
- Long shelf life

#### Working temperature ranges



Working temperature range



Extended temperature range Thermal H10



#### Makes routine laboratory work easier.

JULABO Thermal bath fluids are delivered in containers with a handy drain tap.



### Thermal G

Order No. 5 liters 8 940 125

Order No. 10 liters 8 940 124

Working temperature range °C -30 ... +80

Flash point °C not applicable

Fire point °C not applicable

Viscosity, (kinematic at +20 °C) mm<sup>2</sup>/s 4.07

Density (at +20 °C) g/cm<sup>3</sup> 1.08

Pour point °C -70

Boiling point °C +108

Ignition temperature °C +430

Color light yellow

### Thermal H5

Order No. 5 liters 8 940 107

Order No. 10 liters 8 940 106

Working temperature range °C -50 ... +105

Flash point °C +124

Fire point °C +142

Viscosity, (kinematic at +20 °C) mm<sup>2</sup>/s 5.66

Density (at +20 °C) g/cm<sup>3</sup> 0.92

Pour point °C -100

Boiling point °C +288

Ignition temperature °C +350

Color clear

### Thermal H10

Order No. 5 liters 8 940 115

Order No. 10 liters 8 940 114

Working temperature range °C (-40) -20 ... +180

Flash point °C >+170

Fire point °C +220

Viscosity, (kinematic at +20 °C) mm<sup>2</sup>/s 10.8

Density (at +20 °C) g/cm<sup>3</sup> 0.94

Pour point °C <-60

Boiling point °C +288

Ignition temperature °C +370

Color clear

#### JULABO Thermal bath fluids based on silicon ...

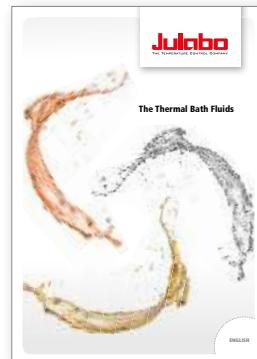
... are chemically inert substances which do not affect metals like iron, copper, zinc, aluminum, chrome or nickel. Compared to other fluids, JULABO Thermal fluids have an extraordinarily high dielectric strength. When properly stored, the fluids will last for 12 months and longer as they are not susceptible to climatic influences.

#### JULABO Thermal bath fluids based on water-glycol ...

... (monoethyleneglycol with anti-corrosion additives) have excellent thermal characteristics and a low viscosity. In addition, they provide anti-freeze protection, i.e. they can be applied at temperatures below the freezing point of water.

#### More information on JULABO Thermal bath fluids ...

... in our brochure 'The Thermal Bath Fluids' at [www.julabo.com](http://www.julabo.com).



## Accessories

### CR® tubing



Order No.	Description	Suitable for
8 930 008	1 m CR® tubing, 8 mm ID (-30 °C ... +120 °C)	AWC100, F250, FL300
8 930 010	1 m CR® tubing, 10 mm ID (-30 °C ... +120 °C)	AWC100, F250
8 930 012	1 m CR® tubing, 12 mm ID (-30 °C ... +120 °C)	FL300

### Reinforced tubing



Order No.	Description	Suitable for
8 930 308	1 m reinforced tubing, 8 mm ID, pressure resistant (-40 °C ... +120 °C)	F500, F1000, FL601/1201/1701, FC models
8 930 312	1 m reinforced tubing, 12 mm /½" ID, pressure resistant (-40 °C ... +120 °C)	F500, F1000, FL601/1201/1701, FC models
8 930 319	1 m reinforced tubing, ¾" ID, pressure resistant (-40 °C ... +120 °C)	FL(W)1203/1703/2503/4003
8 930 325	1 m reinforced tubing, 1" ID, pressure resistant (-40 °C ... +120 °C)	FL(W)2506/4006/7006/11006/20006

### Tubing insulation



Order No.	Description	Suitable for
8 930 410	1 m insulation, 14 mm ID	CR® tubing 8 to 10 mm ID
8 930 412	1 m insulation, 18 mm ID	CR® tubing 12 mm ID, Reinforced tubing 8 mm ID
8 930 413	1 m insulation, 23 mm ID	Reinforced tubing 12 mm /½" ID
8 930 419	1 m insulation, 29 mm ID	Reinforced tubing ¾" ID
8 930 425	1 m insulation, 35 mm ID	Reinforced tubing 1" ID

### Tube clamps



Order No.	Description	Suitable for
8 970 480	2 Tube clamps, size 1	CR® tubing, 8 mm ID
8 970 481	2 Tube clamps, size 2	CR® tubing 10/12 mm ID, Reinforced tubing 8 mm ID
8 970 482	2 Tube clamps, size 3	Reinforced tubing 12 mm /½" ID
8 970 483	2 Tube clamps, size 4	Reinforced tubing ¾" ID
8 970 484	2 Tube clamps, size 5	Reinforced tubing 1" ID

### Twin and quad distributing adapters



Order No.	Description	Suitable for
8 970 470	Twin distributing adapter with barbed fittings for tubing 8 mm ID	F, FL, FC
8 970 472	Twin distributing adapter with barbed fittings for tubing 10 mm ID	F, FL, FC
8 970 471	Twin distributing adapter with barbed fittings for tubing 12 mm ID	F, FL, FC
8 970 476	Twin distributing adapter G ¾" with barbed fittings for tubing ¾" ID	FL(W)1203/1703/2503/4003
8 970 477	Twin distributing adapter G 1¼" with barbed fittings for tubing 1" ID	FL(W)2506/4006/7006/11006/20006
8 970 474	Quad distributing adapter (2 pieces), M16x1, with barbed fittings for tubing 8 mm or 12 mm /½" ID	FC
8 970 520	Quad distributing adapter (2 pieces), M16x1, with barbed fittings for tubing 8 mm or 12 mm /½" ID	F500, F1000, FL(W)601/1201/1701

Order No.	Description	Suitable for
<b>8 970 522</b>	Quad distributing adapter (2 pieces), G ¾" female, with barbed fittings for tubing ¾" ID	FL(W)1203/1703/2503/4003
<b>8 970 524</b>	Quad distributing adapter (2 pieces), G 1¼" female, with barbed fittings for tubing 1" ID	FL(W)2506/4006/7006/11006/20006

### Connections/Adapters



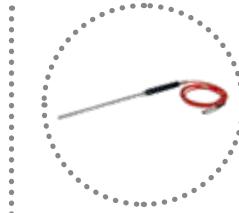
Order No.	Description	Suitable for
<b>8 890 036</b>	2 Barbed fittings for tubing ½" ID to NPT ¾" female	SemiChill
<b>8 890 037</b>	2 Barbed fittings for tubing 5/8" ID to NPT ¾" female	SemiChill
<b>8 890 038</b>	2 Adapters NPT ¾" female to M16x1 male	SemiChill
<b>8 890 040</b>	2 Adapters G ¾" female to M16x1 male	FL(W)1203/1703/2503/4003
<b>8 890 041</b>	2 Adapters G 1¼" female to M16x1 male	FL(W)2506/4006/7006/11006/20006
<b>8 890 042</b>	2 Adapters G ¾" female to barbed fitting for tubing ½" ID	FL(W)1203/1703/2503/4003
<b>8 890 043</b>	2 Adapters G ¾" female to barbed fitting for tubing ¾" ID	FL(W)1203/1703/2503/4003
<b>8 890 044</b>	2 Adapters G 1¼" female to barbed fitting for tubing ½" ID	FL(W)2506/4006/7006/11006/20006
<b>8 890 045</b>	2 Adapters G 1¼" female to barbed fitting for tubing ¾" ID	FL(W)2506/4006/7006/11006/20006
<b>8 890 046</b>	2 Adapters G 1¼" female to barbed fitting for tubing 1" ID	FL(W)2506/4006/7006/11006/20006
<b>8 890 047</b>	2 Adapters G ¾" female to NPT ½" male	FL(W)1203/1703/2503/4003
<b>8 890 048</b>	2 Adapters G ¾" female to NPT ¾" male	FL(W)1203/1703/2503/4003
<b>8 890 049</b>	2 Adapters G 1¼" female to NPT ½" male	FL(W)2506/4006/7006/11006/20006
<b>8 890 050</b>	2 Adapters G 1¼" female to NPT ¾" male	FL(W)2506/4006/7006/11006/20006
<b>8 890 051</b>	2 Adapters G 1¼" female to NPT 1" male	FL(W)2506/4006/7006/11006/20006

### Particle filters/Shut-off valves/Solenoid valve/Castor platform



Order No.	Description	Suitable for
<b>8 970 905</b>	Air filter	AWC100
<b>8 970 906</b>	Filter cartridge	AWC100
<b>8 920 000</b>	Particle filter for cooling water circuit (for water-cooled models)	FLW, FCW, SC5000w, SC10000w
<b>8 970 456</b>	Shut-off valve for loop circuit M16x1	F500, F1000, FL300/601/1201/1701, FC, FCW
<b>8 970 454</b>	Shut-off valve G ¾"	FL(W)1203/1703/2503/4003
<b>8 970 458</b>	Shut-off valve G 1¼"	FL(W)2506/4006/7006/11006/20006
<b>8 980 701</b>	Solenoid valve set for loop circuit (-10 °C ... +130 °C), M16x1	FC, FCW
<b>8 910 045</b>	Castor platform	F250
<b>8 920 016</b>	Micro-filter cartridge 10 micron	SemiChill with option M1
<b>8 920 017</b>	Micro-filter cartridge 25 micron	SemiChill with option M1
<b>8 920 018</b>	Micro-filter cartridge 40 micron	SemiChill with option M1
<b>8 920 019</b>	Micro-filter cartridge 100 micron	SemiChill with option M1
<b>8 920 020</b>	Micro-filter cartridge 250 micron	SemiChill with option M1
<b>8 920 036</b>	Micro-filter cartridge 10 micron	SemiChill with option M2
<b>8 920 038</b>	Micro-filter cartridge 40 micron	SemiChill with option M2
<b>8 920 039</b>	Micro-filter cartridge 100 micron	SemiChill with option M2
<b>8 920 040</b>	Micro-filter cartridge 250 micron	SemiChill with option M2
<b>8 920 005</b>	DI filter cartridge	DI-filter housing, plastic/stainless steel D1/D2
<b>8 920 100</b>	Drain tap, stainless steel, to empty bath easily	SemiChill
<b>8 980 705</b>	Solenoid valve set, 230 V/50-60 Hz, -10 ... +130 °C (Included in delivery: 1 solenoid valve and 1 back pressure valve)	SemiChill

## Accessories



### External Pt100 sensors and extension cables

Order No.	Description	Suitable for
<b>8 981 003</b>	200×6 mm Ø, stainless steel, 1.5 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 006</b>	20×2 mm Ø, stainless steel, 1.5 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 010</b>	300×6 mm Ø, stainless steel, 1.5 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 017</b>	200×6 mm Ø, stainless steel/PTFE coated, 3 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 015</b>	300×6 mm Ø, stainless steel/PTFE coated, 3 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 013</b>	600×6 mm Ø, stainless steel/PTFE coated, 3 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 016</b>	900×6 mm Ø, stainless steel/PTFE coated, 3 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 014</b>	1200×6 mm Ø, stainless steel/PTFE coated, 3 m cable	FC-T variant, SemiChill with professional electronics
<b>8 981 020</b>	M+R in-line Pt100 sensor, 2 connections M16x1 male	FC-T variant, SemiChill with professional electronics
<b>8 981 103</b>	Extension cable 3.5 m for Pt100 sensor	FC-T variant, SemiChill with professional electronics



### Connection plugs and converters

Order No.	Description	Suitable for
<b>8 980 131</b>	External Pt100 sensor connector	FC-T variant, SemiChill with professional electronics
<b>8 980 133</b>	Standby connector, 3 pin	FC, SemiChill with professional electronics
<b>8 980 135</b>	Alarm connector, 5 pin	FL, FC, SemiChill with professional electronics
<b>8 980 136</b>	REG+EPROG connector, 6 pin	FC-T variant, SemiChill with professional electronics
<b>8 980 137</b>	Stakei connector	FC, SemiChill, from FL 2503
<b>8 980 024</b>	SCB converter box	FC, SemiChill



### Wireless communication & Software

Order No.	Description	Suitable for
<b>8 900 020</b>	Profibus DP interface	FL, FC, SemiChill
<b>8 900 024</b>	RS485 interface	FL, FC, SemiChill
<b>8 900 110</b>	USB interface adapter cable, 2.5 m	FL, FC, SemiChill
<b>8 901 102</b>	EasyTEMP Software (free of charge at <a href="http://www.julabo.com">www.julabo.com</a> )	FL, FC, SemiChill
<b>8 901 105</b>	EasyTEMP Professional Software, incl. USB Dongle	FL, FC, SemiChill
<b>8 980 031</b>	Ethernet/RS232 interface converter	FL, FC, SemiChill
<b>8 980 032</b>	4-EtherNet/RS232 converter	FL, FC, SemiChill
<b>8 980 033</b>	8-EtherNet/RS232 converter	FL, FC, SemiChill
<b>8 980 034</b>	WLAN/RS232 converter	FL, FC, SemiChill
<b>8 980 035</b>	2 Channel WLAN/RS232 converter	FL, FC, SemiChill
<b>8 980 036</b>	ATEX Tablet Agile X	FL, FC, SemiChill
<b>8 980 073</b>	RS232 interface cable, 2.5 m	FL, FC, SemiChill
<b>8 980 074</b>	RS232 interface cable, 5 m	FL, FC, SemiChill



### Calibration and testing certificates

Order No.	Description	Suitable for
<b>8 902 901</b>	1-Point Manufacturer's Calibration Certificate for JULABO circulators	All models except AWC100
<b>8 902 903</b>	3-Point Manufacturer's Calibration Certificate for JULABO circulators	All models except AWC100
<b>8 902 905</b>	5-Point Manufacturer's Calibration Certificate for JULABO circulators	All models except AWC100
<b>8 903 025</b>	Manufacturer's Testing Certificate for JULABO refrigeration units	All models except AWC100 up to 1 kW cooling capacity (at +20 °C)
<b>8 903 035</b>	Manufacturer's Testing Certificate for JULABO refrigeration units	All models except AWC100 starting from 1 kW cooling capacity (at +20 °C)



### IQ/OQ Documentation

Order No.	Description	Suitable for
<b>2 310 120</b>	IQ/OQ Documentation, Category 2	F, FL, FC
<b>2 310 130</b>	IQ/OQ Documentation, Category 3	SemiChill



### Preventative maintenance contracts

Order No.	Description	Suitable for
<b>2 350 100</b>	<b>Preventative Maintenance Contract Standard</b> includes the following services: Visual inspection, technical diagnostics, read-out of error memory (BlackBox), testing of tube connections and bath fluid, thorough cleaning of performance-reducing contaminations, testing of control behavior (temperature stability), sensor calibration as needed, testing/measuring of pump and cooling capacity (depending on model) and firmware update (if no hardware adjustment is required)	All models
<b>2 350 110</b>	<b>Preventative Maintenance Contract Premium</b> includes all services listed above as well as spare and wear parts and labor required for installation and replacement	All models

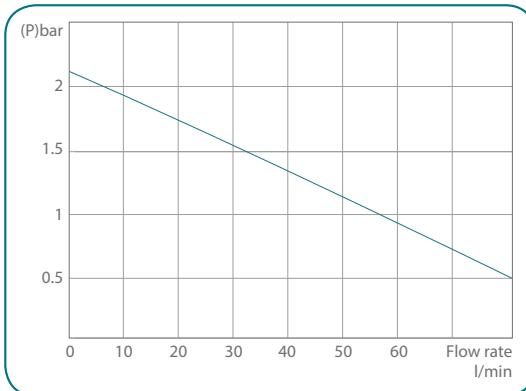
### Booster Pump

The new JULABO magnetically coupled Booster Pump is the ideal solution to increase the pressure or flow rate in your application. The Booster Pump is specifically designed to be easily connected between various JULABO instruments and your application.

The Booster Pump can add 2.1 bar to your fluid pressure. The stainless steel design of the pump provides excellent resistivity against chemical effects. The pump design guarantees 100 % leakage free operation over an extraordinary temperature range of -90 °C ... +250 °C.

The Booster Pump is suitable for FC and SemiChill recirculating coolers<sup>\*3)</sup>

Pump connector cable for connection of the SBC converter box is included in the delivery.



(Measured in a fluid with a density of 1 kg/dm<sup>3</sup>)



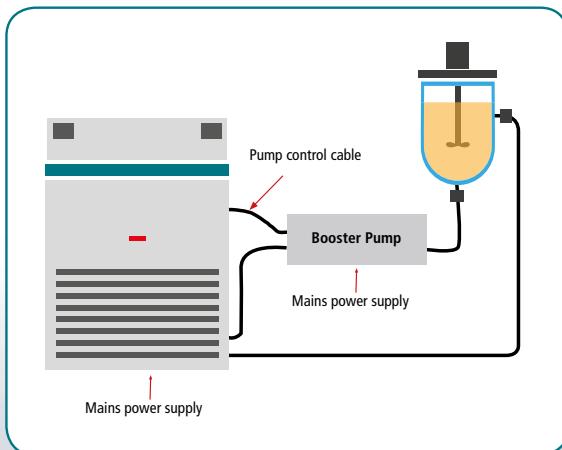
### Booster Pump (Magnetically Coupled)

Order No.	8 810 020	
Model	Booster Pump	
Working temperature range °C	-90	... 250
Pump type	Centrifugal pump	
Material Pump / housing	Stainless steel	
Pump capacity l/min	80	
Flow rate / Pressure bar	2.1 <sup>*1)</sup>	
Pump pressure adjustment	Manual	
Pump pressure display	2 manometers, for input and output pressure	
Suitable fluids	Water-glycol, silicon oil, Fluorinert®	
Viscosity max. cSt.	50	
Fluid connectors	M30x1.5 male <sup>*2)</sup>	
Mains power supply	208 – 230V	±10 % / 50-60 Hz 1~
Power consumption	1.85 A (208 V) / 2 A (230 V)	
Heat input W	230 at full motor speed	
Control input	3-pin connector for SBC converter box	
Weight kg	13.2	
Dimensions cm	W × L × H 28 × 42.5 × 24	

\*<sup>1)</sup> In addition to the pump pressure of the suitable JULABO instrument.

\*<sup>2)</sup> Adapters may be required.

\*<sup>3)</sup> The JULABO SBC converter box (Order No. 8 980 024) is required.



## Plate Heat Exchanger

Plate heat exchangers from JULABO are the ideal solution for applications, in which the bath fluid cannot be used directly in the temperature control instrument.

Depending on the application, this may be the case for example due to viscosity, pressure or material compatibility. In such situations, a plate heat exchanger ensures system separation between the temperature control instrument circuit and the application circuit, thus enabling the use of JULABO devices.

The heat exchangers are compact, professionally insulated and, thanks to our decades of experience, always optimally tailored to customer-specific requirements. This includes topics such as dimensioning, connections, performance characteristics or desired temperature control medium.

### Application examples

- Temperature control of osmosis water in the temperature range of +4 °C to +84 °C.
- Cool-down and condensation of gases/vapors
- Cool-down of gear oil to temperatures down to -40 °C, following by maintenance of the required temperature after self-heating

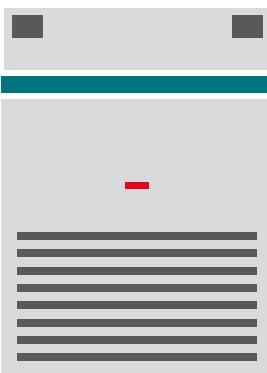


Plate Heat Exchanger

Application

# RECIRCULATING COOLERS

## Environmentally-friendly and Economic

JULABO recirculating coolers can handle virtually any cooling requirements in laboratories or industrial environments. Their efficiency makes them an environmentally-friendly and economical alternative to cooling with tap water. Compact models from JULABO are ideal for placement on or underneath a lab bench. JULABO offers several powerful models with up to 20 kW of cooling capacity for applications in industrial environments.

### Exclusive to JULABO instruments

JULABO recirculating coolers have no vents on the side panels. This means that you can save space by placing several instruments directly next to each other.

- Environmentally-friendly operation with low energy consumption
- Ergonomic design and easy operation
- Working temperature ranges from -25 °C to +130 °C
- Cooling capacity up to 20 kW
- Splash-proof keypad
- Large and bright LED display

- Alarm output (potential free contact) and RS232 interface on virtually all models
- Level indicator
- More powerful models with feed pressure indicator
- Circulating pumps with flow rates up to 80 l/min and pressure up to 6 bar
- Easy access filling
- Drain tap easily accessible
- No side vents, instruments can be placed right next to each other
- Air- and water-cooled models available
- High quality: All parts in contact with the bath fluid are made of stainless steel or high grade plastic (except FC-T models)



## Cost savings (example calculation)

Cooling rotary evaporators is a common way to use recirculating coolers. For example, an average size 3-liter rotary evaporator requires approximately 175,000 liters of cooling water per year. This is almost as much as the yearly consumption of a four-person household! The calculation below is for cooling of two rotary evaporators:

### Water is valuable and costly

The example calculation indicates cost savings of more than €1200 per year! Therefore, a JULABO recirculating cooler will pay for itself just after two years and make a contribution to environmental protection. Increased solvent recovery provides additional saving. The health of the lab employees benefits as well from ambient air with significantly less solvent content.

#### Application parameters

Cooling water inlet:	+15 °C
Cooling water outlet:	+17 °C
Water flow rate:	3 liters per minute

#### Calculation of cooling capacity

P	= $\Delta T * c * m/t$
$\Delta T$	= 2 °C (temperature difference)
c	= 4.18 kJ/kg * K (specific heat capacity of water)
m/t	= 0.05 l/sec (water flow rate)

### The required cooling capacity is 418 W.

#### Costs for operating a recirculating cooler (F500)

Power consumption	= 0.6 kW
Operating time/year	= 240 days x 8 hours
Consumption per year	= 1152 kWh
Costs per kWh	= 0.15 € **
Costs per year	= 172.80 €

#### Cooling water costs

3 liters per minute	= 180 liters per hour
Operating time/year	= 240 days x 8 hours
Consumption per year	= 346 m³
Costs per m³	= 4 € *
Costs per year	= 1384 €

\*Average prices in Baden Württemberg, Germany, August 25, 2016  
<http://www.statistik-bw.de/Presse/Pressemeldungen/2016244>,  
retrieved on 11/23/2016.

\*\* Average price of electricity for an industrial company 2016;  
<http://www.bmwi.de/DE/Themen/Energie/Energiemarkt-und-Verbraucherinformationen/preise.html>,  
retrieved on 11/23/2016.



# RECIRCULATING COOLERS

## Individual and Efficient

### Individual solutions for your application

JULABO is ready to help its customers by providing custom solutions for special requirements. JULABO recirculating coolers can be customized in the following ways:

#### Electric switch output

Some applications require an additional switch output in order to connect a solenoid valve or enable evaluation of a status signal, for example. In situations like these, JULABO can integrate the connection of your choice into the recirculating cooler. All we need to know is the signal level and the desired connector type.

#### Higher cooling capacity

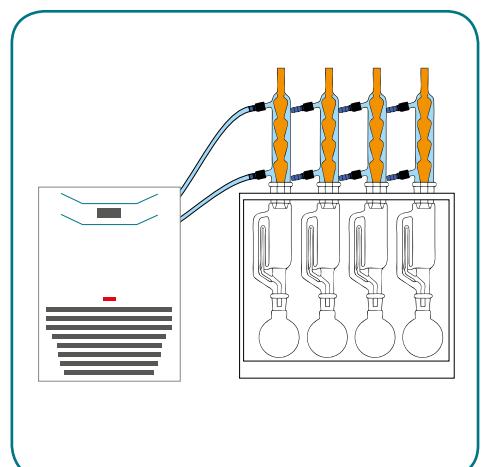
Does your application require greater cooling capacity at a specific operating point? If so, please speak with a JULABO expert. Define the required cooling capacity and corresponding operating point. Upon request, you will receive exactly the instrument that you need.



### Extraction

Quality control applications in laboratories for determination of fat content and extractable substances in food, animal feed, etc. used in the feed, animal nutrition, and dairy industries.

Extraction without consumption of cooling water, consistently reproducible condensation temperatures, without influence of ambient or seasonal temperature fluctuations.



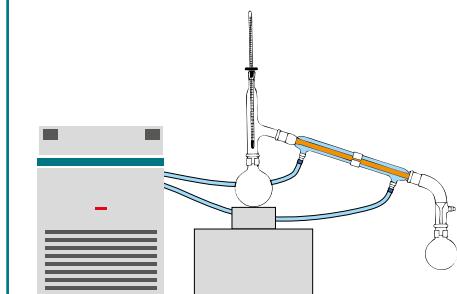
Model	FL300 F250	FL601 F500	FL601	FL1201 F1000	FL1701 FL1201	FL1701	FL2503
Number of condensers	2	4	6	8	12	18	24

## Distillation

Common applications in QA laboratories for determination of alcohol, ethanol, or carbolic levels. Primarily used in the food, beverage, animal feed, cosmetics, and detergent industries as well as in clarification plants.

Distillation without use of tap water, with more effective and reproducible cooling and consistent analysis conditions.

Model	FL1201 F1000	FL2503	FL2503	FL4003
Number of distillation units	1	2	3	4



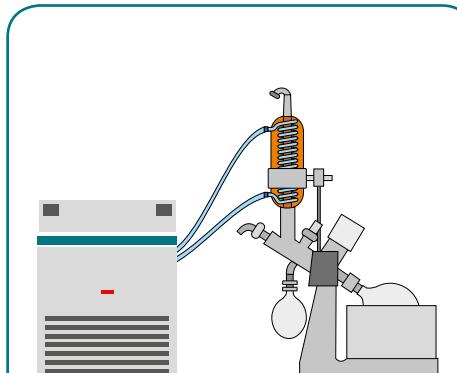
## Evaporation and condensation

Commonly used in laboratories for synthetic chemistry, organic chemistry, scale-ups, or in R&D labs for pharmaceuticals, chemicals, cosmetics, and nutritional chemistry.

Evaporation and concentration without consumption of water, elevated efficiency even at cooling temperatures as low as -10 °C. Independent of external conditions.

**Cooling and temperature control of 1 to 4 rotary evaporators at an evaporation temperature of +40 °C**

Model	FL300 F250	FL601 F500	FL1201 FL1203 F1000	FL1201 FL1203 F1000	FL1701 FL1703	FL2503 FL4003
Flask size	0.5 - 1 liters	Up to 2 liters		Up to 4 liters		Up to 20 liters
Number of rotary evaporators	1	2	3-4	1	2	1-2



# User Benefits and Helpful Tips



## Adjustable pump capacity!

JULABO customers have several different options for controlling the pressure and flow rate in recirculating coolers:

| 1

The simplest option is a manually controlled, steplessly adjustable valve (e.g. accessory 8 970 454).



**Order at the same time!**  
Shut-off valve for recirculating coolers

| 2

Models FL1203 and above have an adjustment wheel on the rear of the unit. The wheel provides for stepless pressure and flow control and diversion through the internal bypass.



**Adjustment wheel at rear**

| 3

SemiChill models include adjustable pumps.



**Electronically controllable pumps**

## Autostart function after power failure!

All JULABO recirculating coolers have an autostart function. In order to comply with industrial standards, the factory setting is "Off".

A simple key combination makes it easy for a JULABO user to activate the autostart function. Then the recirculating cooler will restart automatically after a power interruption.

### USER TIP



## Pump protection

Other units on the market contain pumps (e.g. PD pumps) that may not run up against a closed pump connection without causing damage to the pump.

But pumps used in JULABO units are equipped with technology to ensure that they will not be damaged even if the external liquid loop is interrupted by a kink in the tube, for example.



**JULABO pumps work reliably even with back pressure**

# The **Julabo** advantages at a glance.

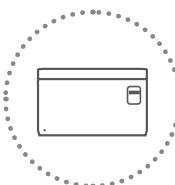
## JULABO temperature control solutions – high-precision and speed

JULABO products include high-quality temperature control solutions to cover the temperature range from -95 °C to +400 °C.



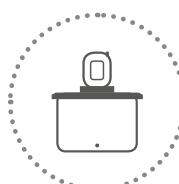
### Refrigerated Circulators

The JULABO Refrigerated Circulators are suitable for internal and external applications and can be used within the temperature range from -95 °C to +200 °C.



### Water Baths and Shaking Water Baths

Water Baths and Shaking Water Baths from JULABO can be used for a variety of applications within the temperature range from +18 °C to +99.9 °C.



### Heating Circulators

Heating Circulators are available in various designs including Heating Immersion Circulators, Open Heating Bath Circulators, or Heating Circulators and cover the temperature range from +20 °C to +300 °C.



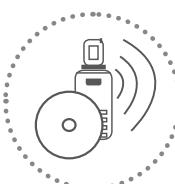
### Additional Products

In addition, the JULABO product portfolio offers instruments for special requirements such as Calibration Baths, Visco Baths, Beer Forcing Test Bath, Immersion / Flow-Through Coolers, Temperature Controllers and Refrigerators for Chemicals.



### Highly Dynamic Temperature Control Systems

The Highly Dynamic Temperature Control Systems from JULABO can be used for demanding temperature applications ranging from -92 °C to +400 °C. The PRESTO series offers unique high performance specifications to meet these requirements.



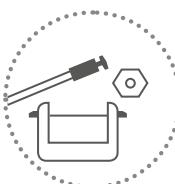
### Wireless Communication & Software Solutions

JULABO facilitates the automation of applications. The temperature control instruments can be comfortably controlled and monitored via PC.



### Recirculating Coolers

JULABO Recirculating Coolers are highly efficient and therefore offer an environmentally friendly and economic alternative to tap water cooling in the temperature range from -25 °C to +130 °C.



### Accessories

The extensive range of accessories for all our instruments allows flexible use of JULABO products in research and industry.

## Comprehensive service and on-site support

JULABO takes pride in offering customers expert advice for pairing the proper JULABO temperature control solution to their specific application. JULABO service and support options include installation and calibration, equipment qualification documentation and application training. These invaluable services ensure customer confidence in the operation and maintenance of any JULABO unit.

## Individual requirements – individual products

The wide range of JULABO offers a solution for almost any application. However, if a specific application needs more than a standard product can offer, the JULABO specialists will work out an individual solution with you.

**JULABO. Quality.**

Highest quality standards to ensure a long product life.

**Green technology.**

Deliberately engineered with environmentally friendly materials and technologies.

**Satisfied customers.**

11 subsidiaries and more than 100 partners worldwide guarantee fast and qualified JULABO support.

**100 % checked.**

100 % testing. 100 % quality. Every JULABO product is shipped to customers after a successful final inspection.

**Quick start.**

Individual JULABO consultation and comprehensive manuals at your disposal.

**Services 24/7.**

Around the clock availability. You can find suitable accessories, data sheets, manuals, case studies and more at [www.julabo.com](http://www.julabo.com).

## Technical Specifications

### Recirculating Coolers / Chillers

Model	Order No.	Working temperature range °C	Display/resolution	Temperature control	Temperature stability °C	Heating capacity kW	Cooling of refrigeration unit	+20	+10
<b>AWC100</b>	9 630 100	+20 ... +40	-	-	-	-	Air	0.55	0.3
<b>F250</b>	9 620 025	-10 ... +40	LED/0.1	PID1	±0.5	-	Air	0.25	0.22
<b>F500</b>	9 620 050	0 ... +40	LED/0.1	PID1	±0.5	-	Air	0.5	0.4
<b>F1000</b>	9 620 100	0 ... +40	LED/0.1	PID1	±0.5	-	Air	1	0.7
<b>FL300</b>	9 660 003	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	0.3	0.25
<b>FL601</b>	9 661 006	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	0.6	0.5
<b>FL1201</b>	9 661 012	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	1.2	1
<b>FL1203</b>	9 663 012	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	1.2	0.9
<b>FL1701</b>	9 661 017	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	1.7	1.5
<b>FL1703</b>	9 663 017	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	1.7	1.4
<b>FLW1701</b>	9 671 017	-20 ... +40	LED/0.1	PID1	±0.5	-	Water	1.7	1.5
<b>FLW1703</b>	9 673 017	-20 ... +40	LED/0.1	PID1	±0.5	-	Water	1.7	1.4
<b>FL2503</b>	9 663 025	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	2.5	2.2
<b>FL2506</b>	9 666 025	-15 ... +40	LED/0.1	PID1	±0.5	-	Air	2.5	1.9
<b>FL4003</b>	9 663 040	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	4	3.4
<b>FL4006</b>	9 666 040	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	4	2.9
<b>FLW2503</b>	9 673 025	-20 ... +40	LED/0.1	PID1	±0.5	-	Water	2.7	2.5
<b>FLW2506</b>	9 676 025	-15 ... +40	LED/0.1	PID1	±0.5	-	Water	2.5	1.9
<b>FLW4003</b>	9 673 040	-20 ... +40	LED/0.1	PID1	±0.5	-	Water	4.3	3
<b>FLW4006</b>	9 676 040	-15 ... +40	LED/0.1	PID1	±0.5	-	Water	4	3
<b>FL7006</b>	9 666 070	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	7	6.4
<b>FL11006</b>	9 666 110	-20 ... +40	LED/0.1	PID1	±0.5	-	Air	11	9
<b>FL20006</b>	9 666 200	-25 ... +40	LED/0.1	PID1	±0.5	-	Air	20	15
<b>FLW7006</b>	9 676 070	-20 ... +40	LED/0.1	PID1	±0.5	-	Water	7.4	-
<b>FLW11006</b>	9 676 110	-20 ... +40	LED/0.1	PID1	±0.5	-	Water	11.5	9
<b>FLW20006</b>	9 676 200	-25 ... +40	LED/0.1	PID1	±0.5	-	Water	20	15
<b>FC600</b>	9 600 060	-20 ... +80	LED/0.1	PID1	±0.2	1.2	Air	0.6	0.47
<b>FC600S</b>	9 600 063	-10 ... +80	LED/0.1	PID1	±0.2	1.2	Air	0.5	0.37
<b>FC1200</b>	9 600 120	-20 ... +80	LED/0.1	PID1	±0.2	1.2	Air	1.3	0.95
<b>FC1200S</b>	9 600 123	-15 ... +80	LED/0.1	PID1	±0.2	1.2	Air	1.2	0.85
<b>FC1600</b>	9 600 160	-20 ... +80	LED/0.1	PID1	±0.2	1.2	Air	1.65	1.25
<b>FC1600S</b>	9 600 163	-15 ... +80	LED/0.1	PID1	±0.2	1.2	Air	1.55	1.15
<b>FC1200T</b>	9 600 126	-10 ... +80	LED/0.1	PID3	±0.2	1.2	Air	1.1	0.75
<b>FC1600T</b>	9 600 166	-15 ... +80	LED/0.1	PID3	±0.2	1.2	Air	1.45	1.05
<b>FCW600</b>	9 601 060	-20 ... +80	LED/0.1	PID1	±0.2	1.2	Water	0.6	0.47
<b>FCW600S</b>	9 601 063	-10 ... +80	LED/0.1	PID1	±0.2	1.2	Water	0.5	0.37
<b>FCW2500T</b>	9 601 256	-25 ... +80	LED/0.1	PID3	±0.2	1.2	Water	2.5	2
<b>SC2500a<sup>1</sup></b>	9500025XXP3H0D0M0	+5 ... +35	Depending on electronics	PID1	±0.1	*	Air	2.5	2
<b>SC2500w<sup>1</sup></b>	9500026XXP3H0D0M0	+5 ... +35	Depending on electronics	PID1	±0.1	*	Water	2.5	2
<b>SC5000a<sup>2,3</sup></b>	9500050XXP3H0D0M0	+5 ... +35	Depending on electronics	PID1	±0.1	*	Air	5.0	3.8
<b>SC5000w<sup>2,3</sup></b>	9500051XXP3H0D0M0	+5 ... +35	Depending on electronics	PID1	±0.1	*	Water	5.0	3.8
<b>SC10000w<sup>2,3</sup></b>	9500101XXP3H0D0M0	+5 ... +35	Depending on electronics	PID1	±0.1	*	Water	10.0	7.5

<sup>1)</sup> with option H1: current consumption = plus 5 A   <sup>2)</sup> with option H5: current consumption = plus 7 A   <sup>3)</sup> with option H12: current consumption = plus 11 A

\* with integrated heater: heating capacity H1 = 1 kW, H5 = 5 kW, H12 = 12 kW

Cooling capacity (kW) at bath temperature (°C) (Medium: JULABO Thermal   Ethanol)						Type	Pump Pressure	Flow rate	Pump connection/ thread	Barbed fittings	Pressure Indicator
+5	0	-5	-10	-20		⑧ Pressure pump	bar	l/min	male	Ø	bar
0.18	-	-	-	-	-	⑧	0.2	2.9	M10×1	8/10 mm	No
0.21	0.18	0.09	-	-	-	⑧	0.35	15	M10×1	8/10 mm	No
0.3	0.25	-	-	-	-	⑧	0.5	24	M16×1	8/12 mm	No
0.55	0.35	-	-	-	-	⑧	1	23	M16×1	8/12 mm	No
0.22	0.2	0.18	0.15	0.1	-	⑧	0.35	15	M16×1	8/12 mm	No
0.45	0.4	0.37	0.33	0.2	-	⑧	1	23	M16×1	8/12 mm	No
1	0.9	0.75	0.6	0.3	-	⑧	1	23	M16×1	8/12 mm	Yes
0.9	0.8	0.65	0.5	0.2	-	⑧	0.5 ... 3	40	G ¾"	¾"	Yes
1.3	1.1	0.98	0.85	0.4	-	⑧	1	23	M16×1	8/12 mm	Yes
1.2	1	0.88	0.75	0.3	-	⑧	0.5 ... 3	40	G ¾"	¾"	Yes
1.3	1.1	0.98	0.85	0.4	-	⑧	1	23	M16×1	8/12 mm	Yes
1.3	1	0.88	0.75	0.3	-	⑧	0.5 ... 3	40	G ¾"	¾"	Yes
1.9	1.5	1.35	1.2	0.55	-	⑧	0.5 ... 3	40	G ¾"	¾"	Yes
1.5	1	0.65	0.3	-	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
2.4	2.4	1.95	1.5	0.65	-	⑧	0.5 ... 3	40	G ¾"	¾"	Yes
2.4	1.9	1.4	0.9	0.05	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
2.1	1.7	1.35	1	0.4	-	⑧	0.5 ... 3	40	G ¾"	¾"	Yes
1.45	1	0.65	0.3	-	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
2.6	2.2	1.75	1.3	0.45	-	⑧	0.5 ... 3	40	G ¾"	¾"	Yes
1.35	1.7	1.2	0.7	-	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
5.8	5.1	4.05	3	1.55	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
8.3	7.5	6.25	5	3	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
12.5	10	8	6	2.5	-	⑧	0.8 ... 6	80	G1 ¼"	1"	Yes
7	7	4.3	3.1	1.3	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
8.2	7.3	6.05	4.8	2.7	-	⑧	0.5 ... 6	60	G1 ¼"	1"	Yes
13.5	12	9.5	7	3	-	⑧	0.8 ... 6	80	G1 ¼"	1"	Yes
0.4	0.33	0.27	0.21	-	-	⑧	0.5	20	M16×1	8/12 mm	No
0.3	0.22	0.15	0.1	-	-	⑧	1.2	22	M16×1	8/12 mm	No
0.75	0.6	0.49	0.37	-	-	⑧	0.5	20	M16×1	8/12 mm	Yes
0.55	0.5	0.38	0.26	-	-	⑧	1.2	22	M16×1	8/12 mm	Yes
1	0.8	0.63	0.47	-	-	⑧	0.5	20	M16×1	8/12 mm	Yes
0.9	0.65	0.5	0.36	-	-	⑧	1.2	22	M16×1	8/12 mm	Yes
0.55	0.4	0.28	0.15	-	-	⑧	3.5	28	M16×1	8/12 mm	Yes
0.8	0.5	0.38	0.25	-	-	⑧	3.5	28	M16×1	8/12 mm	Yes
0.4	0.33	0.27	0.21	-	-	⑧	0.5	20	M16×1	8/12 mm	Yes
0.3	0.22	0.6	0.1	-	-	⑧	1.2	22	M16×1	8/12 mm	Yes
1.8	2	1.4	0.8	0.25	-	⑧	3.5	28	M16×1	8/12 mm	Yes
1.8	1.5	1.2	0.9	-	-	⑧	3.5	33	NPT ¾"	¾"	Yes
1.8	1.5	1.2	0.9	-	-	⑧	3.5	33	NPT ¾"	¾"	Yes
3.2	2.5	1.9	1.2	-	-	⑧	3.5	33	NPT ¾"	¾"	Yes
3.2	2.5	1.9	1.2	-	-	⑧	3.5	33	NPT ¾"	¾"	Yes
6.3	5.0	3.8	2.5	-	-	⑧	3.5	33	NPT ¾"	¾"	Yes

Filling volume liters	Classification acc. to DIN 12876-1	IP Class acc. to IEC 60529	Power requirement V/Hz/A	Noise level dBA	RS232 Interface	Dimensions W×L×H cm	Weight net kg	Model
0.9	I (NFL)	IP21	230/50-60/1	55	No	20×34×30	11	<b>AWC100</b>
1.7 ... 2.6	I (NFL)	IP20	230/50/2	59	No	24×40×52	27	<b>F250</b>
5 ... 7.5	I (NFL)	IP20	230/50/3	62	No	37.5×44×59	34	<b>F500</b>
7 ... 9.5	I (NFL)	IP20	230/50/3	62	No	37.5×49×64	45	<b>F1000</b>
3 ... 4.5	I (NFL)	IP21	230/50/3	55	Yes	25×50×60	39	<b>FL300</b>
5.5 ... 8	I (NFL)	IP21	230/50/5	55	Yes	32×50×62	48	<b>FL601</b>
12 ... 17	I (NFL)	IP21	230/50/7	61	Yes	50×76×64	76	<b>FL1201</b>
12 ... 17	I (NFL)	IP21	230/50/12	61	Yes	50×76×64	91	<b>FL1203</b>
12 ... 17	I (NFL)	IP21	230/50/10	62	Yes	50×76×64	85	<b>FL1701</b>
12 ... 17	I (NFL)	IP21	230/50/12	63	Yes	50×76×64	91	<b>FL1703</b>
12 ... 17	I (NFL)	IP21	230/50/10	59	Yes	50×76×64	82	<b>FLW1701</b>
12 ... 17	I (NFL)	IP21	230/50/12	60	Yes	50×76×64	88	<b>FLW1703</b>
24 ... 30	I (NFL)	IP21	230/50/11	64	Yes	60×76×115	146	<b>FL2503</b>
24 ... 30	I (NFL)	IP21	230/50/14	64	Yes	60×76×115	158	<b>FL2506</b>
24 ... 30	I (NFL)	IP21	3×400/50/8	67	Yes	60×76×115	148	<b>FL4003</b>
24 ... 30	I (NFL)	IP21	3×400/50/12	67	Yes	60×76×115	157	<b>FL4006</b>
24 ... 30	I (NFL)	IP21	230/50/11	61	Yes	60×76×115	143	<b>FLW2503</b>
24 ... 30	I (NFL)	IP21	230/50/14	61	Yes	60×76×115	160	<b>FLW2506</b>
24 ... 30	I (NFL)	IP21	3×400/50/8	65	Yes	60×76×115	143	<b>FLW4003</b>
24 ... 30	I (NFL)	IP21	3×400/50/13	65	Yes	60×76×115	160	<b>FLW4006</b>
39 ... 47	I (NFL)	IP21	3×400/50/14	74	Yes	78×85×148	252	<b>FL7006</b>
39 ... 47	I (NFL)	IP21	3×400/50/17	74	Yes	78×85×148	248	<b>FL11006</b>
15 ... 37	I (NFL)	IP21	3×400/50/18	73	Yes	95×115×161	360	<b>FL20006</b>
39 ... 47	I (NFL)	IP21	3×400/50/14	74	Yes	78×85×148	220	<b>FLW7006</b>
39 ... 47	I (NFL)	IP21	3×400/50/17	74	Yes	78×85×148	250	<b>FLW11006</b>
15 ... 37	I (NFL)	IP21	3×400/50	69	Yes	95×115×161	360	<b>FLW20006</b>
6 ... 8	III (FL)	IP21	230/50/8	51	Yes	35×54×49	48	<b>FC600</b>
6 ... 8	III (FL)	IP21	230/50/10	54	Yes	35×54×49	52	<b>FC600S</b>
8 ... 11	III (FL)	IP21	230/50/10	53	Yes	46×61×49	60	<b>FC1200</b>
8 ... 11	III (FL)	IP21	230/50/12	57	Yes	46×61×49	66	<b>FC1200S</b>
8 ... 11	III (FL)	IP21	230/50/11	53	Yes	46×61×49	65	<b>FC1600</b>
8 ... 11	III (FL)	IP21	230/50/13	57	Yes	46×61×49	66	<b>FC1600S</b>
8 ... 11	III (FL)	IP21	230/50/12	58	Yes	46×61×49	67	<b>FC1200T</b>
8 ... 11	III (FL)	IP21	230/50/13	58	Yes	46×61×49	67	<b>FC1600T</b>
6 ... 8	III (FL)	IP21	230/50/8	51	Yes	35×54×49	48	<b>FCW600</b>
6 ... 8	III (FL)	IP21	230/50/10	54	Yes	35×54×49	52	<b>FCW600S</b>
8 ... 11	III (FL)	IP21	230/50/12	53	Yes	46×61×49	74	<b>FCW2500T</b>
21 ... 33	III (FL)	IP21	230/50/10	65	Yes	49×62×105	123	<b>SC2500a *1</b>
21 ... 33	III (FL)	IP21	230/50/10	63	Yes	49×62×105	123	<b>SC2500w *1</b>
43 ... 60	III (FL)	IP21	3×400/50/11	71	Yes	59×67×112	153	<b>SC5000a *2,3</b>
43 ... 60	III (FL)	IP21	3×400/50/11	69	Yes	59×67×112	153	<b>SC5000w *2,3</b>
43 ... 60	III (FL)	IP21	3×400/50/18	69	Yes	59×67×112	159	<b>SC10000w *2,3</b>

Unless otherwise indicated, all data relates to the operation at nominal voltage and frequency and +20 °C ambient temperature.  
Cooling capacity measured according to DIN 12876-2. Information regarding used refrigerants can be found at [www.julabo.com](http://www.julabo.com)

## Voltage Options

## **Recirculating Coolers / Chillers**



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your reliable & trusted business partner

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Email : [enquiry@lesoshoppe.com](mailto:enquiry@lesoshoppe.com)

**Julabo**  
THE TEMPERATURE CONTROL COMPANY

# PURA™

## Water Baths



**lesoshoppe.com**  
your reliable & trusted business partner

ENGLISH



***The all-new PURA™ water baths.***

***High quality. Practical. Durable.***

Users place high demands on modern water baths in terms of functionality and reliability. Above all, a water bath must be trouble-free and low-maintenance in everyday operations. For this reason, JULABO does not only count on proven functions in the new PURA series of water baths, but particularly also on simple, intuitive operation and high material and component quality. The result is functional and high-quality water baths that facilitate regular temperature applications in the laboratory and, thanks to their durable design, can withstand permanent loads without any problems.

## Advantages and main features

# PURA™



### Ease of use.

The controls on the front side are easy to reach and use.



### Easy handling.

A frontally integrated drain screw allows clean, safe, and effortless emptying of the baths.



### Easy cleaning.

PURA does not incorporate any interfering functional elements. The smooth surfaces can be cleaned quickly and without residue.



***The all-new PURA™ water baths.  
Intelligent design, full functionality.***

In addition to their high quality, ease of use and easy-to-read display, PURA water baths offer a number of functions and features that enable efficient use in the laboratory. These include, among other things, an integrated timer and a specially designed outer edge, which automatically drains condensed fluid back into the bath. Another special feature is the included, removable platform. Sample containers, which are placed on the platform, are fully immersed and thus optimally tempered.



# PURA™

For a working temperature range<sup>1)</sup> from +18 °C to +99.9 °C

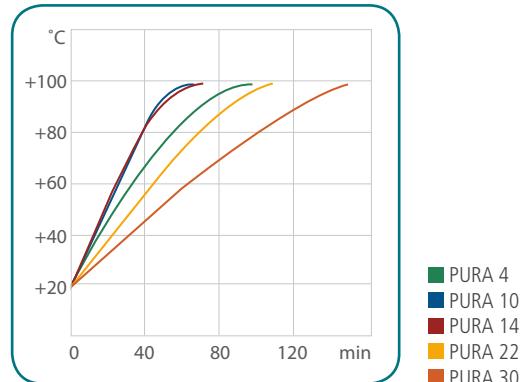
PURA water baths stand for innovative, simple, and safe working in the laboratory. All models (except PURA 4) come with an integrated drain screw for quick and clean draining of the baths. PURA water baths are flexible and can be easily transported through ergonomic side recessed grips. Non-slip rubber feet ensure a firm footing and more safety in the laboratory.

For reliable processes and consistent results, PURA water baths offer advantages such as:

- Ease of use
- Bright display
- Splash-proof protected power switch
- Built-in dry running protection
- Integrated drain screw (except PURA 4)
- No interfering elements in the bath
- Platform included as standard
- Integrated timer
- Non-slip rubber feet
- Ergonomic recessed grips

## Heat-up time<sup>2)</sup>

Medium: Water



PURA™ 4		PURA™ 10	
Order No.	9 550 504	Order No.	9 550 510
Working temperature range °C <sup>1)</sup>	+18 ... +99.9	Working temperature range °C <sup>1)</sup>	+18 ... +99.9
Temperature stability °C <sup>2)</sup>	±0.15	Temperature stability °C <sup>2)</sup>	±0.15
Heating capacity kW	0.5	Heating capacity kW	1.2
Bath opening/Bath depth cm	W×L/D 12 × 27 / 14	Bath opening/Bath depth cm	W×L/D 22 × 27 / 14
Number of test tube racks	1	Number of test tube racks	2
Filling volume liters	0.8 ... 4.5	Filling volume liters	1.4 ... 9.5
Weight kg	4.9	Weight kg	7
Dimensions cm	W×L×H 21 × 35 × 22	Dimensions cm	W×L×H 31 × 35 × 22

<sup>1)</sup> with counter-cooling/bath cover (accessories)

<sup>2)</sup> with bath cover (accessories)



### Cooling coil

For working near ambient temperature (accessories).



### Lift-up bath cover

Protects against water loss through evaporation (accessories).



### PURA™ 14

**Order No.** 9 550 514

Working temperature range °C<sup>1)</sup> +18 ... +99.9

Temperature stability °C<sup>2)</sup> ±0.15

Heating capacity kW 1.8

Bath opening/Bath depth cm W×L/D 33×27 / 14

Number of test tube racks 3

Filling volume liters 2 ... 14

Weight kg 8.5

Dimensions cm W×L×H 42×35×22

### PURA™ 22

**Order No.** 9 550 522

Working temperature range °C<sup>1)</sup> +18 ... +99.9

Temperature stability °C<sup>2)</sup> ±0.15

Heating capacity kW 2

Bath opening/Bath depth cm W×L/D 55×27 / 18

Number of test tube racks 5

Filling volume liters 3.4 ... 25.5

Weight kg 11.5

Dimensions cm W×L×H 64×35×26

### PURA™ 30

**Order No.** 9 550 530

Working temperature range °C<sup>1)</sup> +18 ... +99.9

Temperature stability °C<sup>2)</sup> ±0.15

Heating capacity kW 2

Bath opening/Bath depth cm W×L/D 77×27 / 18

Number of test tube racks 7

Filling volume liters 4.8 ... 36

Weight kg 14.5

Dimensions cm W×L×H 86×35×26

## Accessories & technical data



**Water bath protective media** to prevent the formation of algae or bacteria and the **descaling agent**

Order No.	Description	Suitable for
8 940 006	Aqua Stabil, 6 bottles, 100 ml each	PURA
8 940 012	Aqua Stabil, 12 bottles, 100 ml each	PURA
9 940 200	Descaling agent, 1 liter	PURA



**Hollow Balls** to reduce heat loss, evaporation, odors, exposure to oxygen or light

Order No.	Description	Suitable for
8 970 010	Hollow balls, Polypropylene®, 20 mm Ø, 1000 pcs. (up to +100 °C, for water only)	PURA



**Lift-up bath covers**, transparent

Order No.	Description	Suitable for
9 970 580	Lift-up bath cover	PURA 4
9 970 581	Lift-up bath cover	PURA 10
9 970 582	Lift-up bath cover	PURA 14
9 970 583	Lift-up bath cover	PURA 22
9 970 584	Lift-up bath cover	PURA 30



**Flat bath covers** with sets of rings

Order No.	Description	Suitable for
9 970 570	Flat bath cover with 4 openings, 92 mm Ø	PURA 10
9 970 571	Flat bath cover with 1 opening, 190 mm Ø	PURA 10
9 970 572	Flat bath cover with 6 openings, 92 mm Ø	PURA 14
9 970 573	Flat bath cover with 8 openings, 92 mm Ø	PURA 22
9 970 574	Flat bath cover with 6 openings, 115 mm Ø	PURA 22
9 970 575	Flat bath cover with 2 openings, 190 mm Ø	PURA 22
9 970 576	Flat bath cover with 10 openings, 115 mm Ø	PURA 30
9 970 577	Flat bath cover with 3 openings, 190 mm Ø	PURA 30

## Technical data

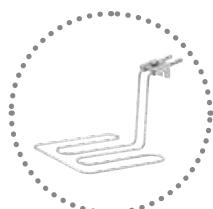
Model	Order No.	Working temperature range <sup>1)</sup> °C	Display	Resolution	Temperature Control	Temperature stability <sup>2)</sup> °C	Heating capacity kW	Filling volume liters	Classification acc. to DIN 12876-1
PURA 4	9 550 504	+18 ... +99.9	LED	0.1	PID1	±0.15	0.5	0.8 ... 4.5	I (NFL)
PURA 10	9 550 510	+18 ... +99.9	LED	0.1	PID1	±0.15	1.2	1.4 ... 9.5	I (NFL)
PURA 14	9 550 514	+18 ... +99.9	LED	0.1	PID1	±0.15	1.8	2 ... 14	I (NFL)
PURA 22	9 550 522	+18 ... +99.9	LED	0.1	PID1	±0.15	2	3.4 ... 25.5	I (NFL)
PURA 30	9 550 530	+18 ... +99.9	LED	0.1	PID1	±0.15	2	4.8 ... 36	I (NFL)

<sup>1)</sup> with counter-cooling/bath cover (accessories)

<sup>2)</sup> with bath cover (accessories)


**Test tube racks** made out of high grade plastic, up to +100 °C

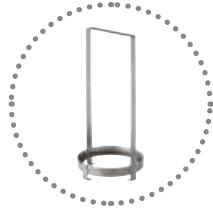
Order No.	Description	Suitable for
9 970 300	Test tube rack for 60 tubes 100 mm × 16/17 mm Ø	PURA
9 970 301	Test tube rack for 90 tubes 75 mm × 12/13 mm Ø	PURA
9 970 303	Test tube rack for 21 tubes, 30 mm Ø	PURA


**Cooling coil & liquid level/cooling set**

Order No.	Description	Suitable for
9 970 534	Cooling coil	PURA 10, PURA 14
9 970 536	Cooling coil	PURA 22, PURA 30
8 970 415	Liquid level/cooling set	PURA 10, 14, 22, 30


**Drain tap**

Order No.	Description	Suitable for
8 970 453	Drain tap with tubing, 8 mm ID	PURA 10, 14, 22, 30


**Dentistry accessories**

Order No.	Description	Suitable for
9 970 331	Stents lifter	PURA 4
9 970 532	Stainless steel hygiene insert	PURA 4

**Voltage Options**

Model	Order No.	Available mains voltages / heating capacity kW	
		230 V 50-60 Hz	100-115 V 50-60 Hz
PURA 4	9 550 504	0.5	0.38 ... 0.5
PURA 10	9 550 510	1.2	0.9 ... 1.2
PURA 14	9 550 514	1.8	0.98 ... 1.3
PURA 22	9 550 522	2	0.98 ... 1.3
PURA 30	9 550 530	2	0.98 ... 1.3

Power requirement V / Hz / A	Permissible ambient temperature °C	Test tube racks items	Usable bath opening W × L / D cm	Dimensions W × L × H cm	Dimensions with bath cover W × L × H cm	Weight net kg	Model
230/50-60/3	+5 ... +40	1	12 × 27 / 14	21 × 35 × 22	21 × 37 × 36	4.9	PURA 4
230/50-60/6	+5 ... +40	2	22 × 27 / 14	31 × 35 × 22	31 × 37 × 36	7	PURA 10
230/50-60/8	+5 ... +40	3	33 × 27 / 14	42 × 35 × 22	42 × 37 × 36	8.5	PURA 14
230/50-60/9	+5 ... +40	5	55 × 27 / 18	64 × 35 × 26	64 × 37 × 40	11.5	PURA 22
230/50-60/9	+5 ... +40	7	77 × 27 / 18	86 × 35 × 26	86 × 37 × 40	14.5	PURA 30

Unless otherwise indicated, all data relates to the operation at nominal voltage and frequency and +20 °C ambient temperature.

# The **Julabo** advantages at a glance.

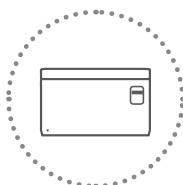
## JULABO temperature control solutions – high-precision and speed

JULABO products include high-quality temperature control solutions to cover the temperature range -95 °C to +400 °C.



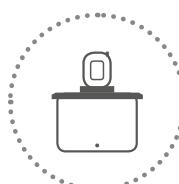
### Refrigerated Circulators

The JULABO Refrigerated Circulators are suitable for internal and external applications and can be used within the temperature range -95 °C to +200 °C.



### Water Baths and Shaking Water Baths

JULABO Water Baths and Shaking Water Baths can be used for a variety of applications within the temperature range +18 °C to +99.9 °C.



### Heating Circulators

Heating Circulators are available in various designs including Heating Immersion Circulators, Open Heating Bath Circulators, or Heating Circulators and cover the temperature range +20 °C to +300 °C.



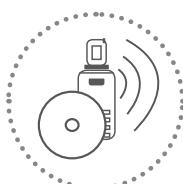
### Additional Products

In addition, the JULABO product portfolio offers instruments for special requirements such as Calibration Baths, Visco Baths, Beer Forcing Test Baths, Immersion / Flow-Through Coolers, Temperature Controllers and Refrigerators for Chemicals.



### Highly Dynamic Temperature Control Systems

The Highly Dynamic Temperature Control Systems from JULABO can be used for demanding temperature applications ranging from -92 °C to +400 °C. The PRESTO series offers unique high-performance specifications to meet these requirements.



### Wireless Communication & Software Solutions

JULABO facilitates the automation of applications. The temperature control instruments can be comfortably controlled and monitored via PC.



### Recirculating Coolers

JULABO Recirculating Coolers are highly efficient and therefore offer an environmentally friendly and economic alternative to tap water cooling in the temperature range -25 °C to +130 °C.



### Accessories

The extensive range of instrument accessories ensures JULABO products are adaptable for research and industry use.

## Comprehensive service and on-site support

JULABO takes pride in offering customers expert advice for pairing the proper JULABO temperature control solution to their specific application. JULABO service and support options include installation and calibration, equipment qualification documentation and application training. These invaluable services ensure customer confidence in the operation and maintenance of any JULABO unit.

## Individual requirements – individual products

JULABO's wide product range offers a solution for almost any application. However, if a specific application needs more than a standard product can offer, the JULABO specialists will work out an individual solution with you.

**JULABO. Quality.**

Highest quality standards to ensure a long product life.

**Green technology.**

Deliberately engineered with environmentally friendly materials and technologies.

**Satisfied customers.**

11 subsidiaries and more than 100 partners worldwide guarantee fast and qualified JULABO support.

**100 % checked.**

100 % testing. 100 % quality. Every JULABO product is shipped to customers after a successful final inspection.

**Quick start.**

Individual JULABO consultation and comprehensive manuals at your disposal.

**Services 24/7.**

Around the clock availability. You can find suitable accessories, data sheets, manuals, case studies and more at [www.julabo.com](http://www.julabo.com).



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**Julabo**  
THE TEMPERATURE CONTROL COMPANY

# SHAKING WATER BATHS



ENGLISH

**Leso**shoppe.com

## Display



### Easy to read

Large LED temperature display for actual value and setpoint (display resolution 0.1 °C)



### Several values at a glance

Large Multi-Display (LED), easy to read across the room, for actual value and up to 3 setpoints, warning functions, high temperature cut-off, (display resolution 0.01/0.1 °C)

## Operation



### Clearly structured

Comfortable, splash-proof keypad for setpoint adjustment, high/low temperatures, timer and shaking frequency

## Temperature Control



### Precise

PID Temperature control with set control parameters, temperature stability  $\pm 0.02 \dots \pm 0.2$  °C



### High measuring accuracy

'Absolute Temperature Calibration' for manual compensation of a temperature difference, 1-point calibration

## Technical Features



### Serial connection

RS232 interface for PC connection, e.g. for data communication and recording of measured values

## Warning & Safety Functions



### Early warning system for high/low temperature

Maximum safety for applications, optical and audible alarm, convertible to automated cut-off function



### Only for non-flammable fluids

Class I (NFL) according to DIN 12876-1



## Shaking Water Baths



Intro .....	4
SW Series.....	6
Accessories .....	8
Advantages at a Glance.....	10
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# SHAKING WATER BATHS

HIGH QUALITY AND DURABLE

## Experienced and Safe. Shaking Water Baths.

JULABO offers the shaking water baths of the SW series for routine applications, such as temperature applications for samples, incubation, material testing, corrosion tests, as well as temperature control applications of cultivations or temperature tests for food and beverages. All SW models are durable instruments of high quality. Their working temperature ranges from +20 °C to +99.9 °C qualifying them for a wide range of applications.



### Advantages of shaking water baths

- Ease of use
- Overall splash water protection
- Integrated power switch
- Bright LED display
- Bath volumes from 8 to 20 liters
- Lift-up bath cover (accessory)
- High temperature stability of up to  $\pm 0.02$  °C
- Acoustic and optical low water level alarm
- Convenient bath drain
- Removable bottom plate or shaking insert
- Comprehensive selection of accessories for temperature control of samples
- Highest quality (all parts in contact with the bath fluid are made of stainless steel or high grade plastic)
- Warning and cut-off protection for high/low temperature
- Adjustable shaking frequencies from 20 ... 200 rpm
- integrated
- RS232 interface

### Practical Tip

The wide selection of accessories permits specific and individual set-up of all SW models for your temperature applications.



The removable shaking insert prevents direct contact with the bath fluid. Carrier trays can be assembled comfortably outside the bath.



Removable  
shaking insert



Integrated timer  
(0 ... 10 operating hours)



Adjustable  
shaking frequency  
(20 ... 200 rpm)



RS232 interface



High temperature stability  
 $\pm 0.2^\circ\text{C}$  or  $\pm 0.02^\circ\text{C}$



Ease of use  
Keypad with LED display



Wide selection of  
test tube racks



Lift-up bath covers  
in Makrolon® or stainless steel



Space saving design  
Large bath volume



Durable handles for  
easy positioning



Integrated power switch  
with auto-start function



Easy-access drain



Integrated  
high performance heater  
for rapid heat-up



High quality stainless  
steel bath tanks  
with inward-sloped edge

# Shaking Water Baths

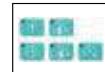


## Shaking Water Baths

+20 °C ... +99.9 °C

Two models with shaking function  
and up to 20 liters filling volume

- Ease of use through keypad
- Bright LED display
- Overall splash water protection
- Dry-running protection with acoustic and optical alarm
- Adjustable shaking frequency from 20 bis 200 rpm
- Removable bottom plate and shaking insert



SW keypad

Please refer to the page 2 for a description of the icons shown above.

## Shaking Water Baths SW Series

for working temperatures from +20 °C to +99.9 °C

JULABO Shaking Water Baths provide numerous state-of-the-art features for common day-to-day laboratory tasks. For example: sloped edges keep the water in the stainless steel bath tank even when the bath lid is open.

- Overall splash water protection
- Low water-level warning and cut-off functions
- Integrated timer (0 ... 10 operating hours)
- User-friendly operation and consistent reproducibility
- ATC 1-point calibration

### SW22:

Temperature stability  $\pm 0.2$  °C,  
for general applications

### SW23:

Temperature stability  $\pm 0.02$  °C, in addition with integrated circulating pump for best temperature stability and homogeneity



### SW22

**Order No.** 9 550 322

**Model** SW22

Working temperature range °C +20 ... +99.9

Temperature stability °C  $\pm 0.2$

Heating capacity kW 2

Shaking frequency rpm 20 ... 200

Shaking stroke mm 15

Filling volume liters 8 ... 20

Bath opening/  
Bath depth cm 50 x 30 / 18

Dimensions cm  
cm W x L x H<sup>\*</sup>  
70 x 35 x 26

### SW23

**Order No.** 9 550 323

**Model** SW23

Working temperature range °C +20 ... +99.9

Temperature stability °C  $\pm 0.02$

Heating capacity kW 2

Shaking frequency rpm 20 ... 200

Shaking stroke mm 15

Filling volume liters 8 ... 20

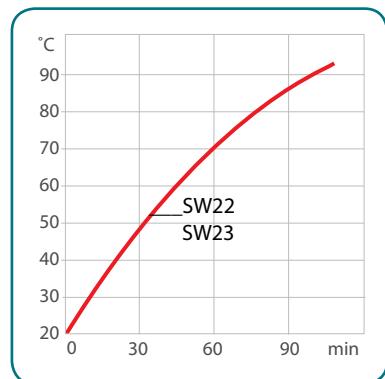
Bath opening/  
Bath depth cm 50 x 30 / 18

Dimensions cm  
cm W x L x H<sup>\*</sup>  
70 x 35 x 26

\* Height with cover 43 cm

### Heat-up time

Bath fluid: water



### Applications

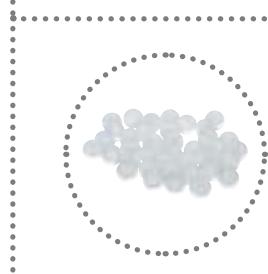
Biochemical research, material testing, enzyme and tissue studies, homogenization, routine laboratory tasks, corrosion tests, fermentation, incubation, blood plasma thawing, temperature tests of food and beverages

## Accessories



### Lift-up bath covers

Order No.	Description	Suitable for
8 970 288	Lift-up Makrolon® cover (up to +80 °C), transparent	SW22, SW23
8 970 268	Lift-up stainless steel cover (up to +100 °C)	SW22, SW23



**Hollow balls** to reduce heat loss, evaporation, oxygen input, odors, action of light

Order No.	Description	Suitable for
8 970 010	Hollow balls, Polypropylene®, 20 mm Ø, 1000 pcs (up to +100 °C, for water only)	SW22, SW23



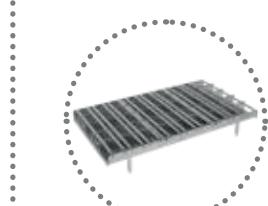
### Cooling installation / Continuous water supply

Order No.	Description	Suitable for
8 970 415	Liquid level / cooling set	SW22, SW23
8 970 416	Cooling coil	SW22, SW23



### All-purpose spring tray/ Set of springs

Order No.	Description	Suitable for
8 970 630	All-purpose spring tray, pre-assembled for 11 Erlenmeyer flasks 250 ml, incl. set of springs for Erlenmeyer flasks 25 ... 1000 ml	SW22, SW23
8 970 631	Set of springs consisting of 5 springs 190 mm and 12 springs 135 mm (for tray 8 970 630)	SW22, SW23



### Standard carrier tray for Erlenmeyer flasks

Order No.	Description	Suitable for
8 970 360	for 45 flasks, 25 ml	SW22, SW23
8 970 361	for 32 flasks, 50 ml	SW22, SW23
8 970 362	for 18 flasks, 100 ml	SW22, SW23
8 970 363	for 15 flasks, 200 ml	SW22, SW23
8 970 364	for 11 flasks, 250-300 ml	SW22, SW23
8 970 365	for 8 flasks, 500 ml	SW22, SW23
8 970 366	for 5 flasks, 1000 ml	SW22, SW23



### Carrier trays and spring clamps for Erlenmeyer flasks

Order No.	Description	Suitable for
8 970 620	Base tray for any spring clamps	SW22, SW23
8 970 601	Spring clamp for 10 ml flasks	SW22, SW23
8 970 602	Spring clamp for 25 ml flasks	SW22, SW23
8 970 603	Spring clamp for 50 ml flasks	SW22, SW23
8 970 604	Spring clamp for 100 ml flasks	SW22, SW23
8 970 606	Spring clamp for 200-250 ml flasks	SW22, SW23
8 970 607	Spring clamp for 300 ml flasks	SW22, SW23
8 970 608	Spring clamp for 500 ml flasks	SW22, SW23
8 970 609	Spring clamp for 1000 ml flasks	SW22, SW23



### Carrier trays for test tube racks

Order No.	Description	Suitable for
8 970 369	Base carrier tray for a maximum of 4 test tube racks	SW22, SW23
<b>Test tube racks made of Polypropylene® (up to +80 °C)</b>		
8 970 380	for 60 test tubes, 16/17 mm Ø	SW22, SW23
8 970 381	for 90 test tubes, 12/13 mm Ø	SW22, SW23
8 970 382	for 90 microliter tubes, 11/12 mm Ø	SW22, SW23
8 970 383	for 21 test tubes, 30 mm Ø	SW22, SW23
<b>Test tube racks made of stainless steel (up to +100 °C)</b>		
8 970 344	for 50 test tubes, 16/17 mm Ø	SW22, SW23
8 970 345	for 90 test tubes, 12/13 mm Ø	SW22, SW23
8 970 346	for 90 microliter tubes, 11/12 mm Ø	SW22, SW23
8 970 347	for 21 test tubes, 30 mm Ø	SW22, SW23



### Complete carrier trays with test tube racks (up to +80 °C)

Order No.	Description	Suitable for
8 960 440	for 240 test tubes, 16/17 mm Ø	SW22, SW23
8 960 441	for 360 test tubes, 12/13 mm Ø	SW22, SW23
8 960 442	for 360 microliter tubes, 30 x 11/12 mm Ø	SW22, SW23
8 960 443	for 84 test tubes, 30 mm Ø	SW22, SW23



### Software

Order No.	Description	Suitable for
8 901 102	EasyTemp control software, free of charge at <a href="http://www.julabo.com">www.julabo.com</a>	SW22, SW23
8 901 105	EasyTemp Professional software, incl. USB dongle	SW22, SW23
8 980 075	RS232 interface cable, 3 m, for direct PC connection	SW22, SW23



### Aqua Stabil water protective media to prevent formation of algae and bacteria and Descaling agent

Order No.	Description	Suitable for
8 940 006	Aqua Stabil, 6 bottles, 100 ml each	SW22, SW23
8 940 012	Aqua Stabil, 12 bottles, 100 ml each	SW22, SW23
9 940 200	Descaling agent, 1 liter	SW22, SW23

# The **Julabo** advantages at a glance.

## JULABO temperature control – high-precision and speed

JULABO products include high-quality temperature control solutions to cover the temperature range from -95 °C to +400 °C.



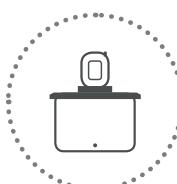
### Refrigerated Circulators

The JULABO refrigerated circulators are suitable for internal and external applications and can be used within the temperature range of -95 °C to +200 °C.



### Water Baths and Shaking Water Baths

Water baths and shaking water baths from JULABO can be used for a variety of applications in the temperature range from +18 °C to +99.9 °C.



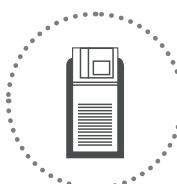
### Heating Circulators

Heating circulators are available in various designs including Heating Immersion Circulators, Open Heating Bath Circulators, or Heating Circulators and cover the temperature range from +20 °C to +300 °C.



### Additional Products

In addition, the JULABO product portfolio has equipment for special applications such as Calibration Baths, Visco Baths, Beer Forcing Test Bath, Immersion / Flow-Through Coolers, Temperature Controllers and Refrigerators for Chemicals.



### Highly Dynamic Temperature Control Systems

The highly dynamic temperature control systems from JULABO can be used for demanding temperature applications ranging from -92 °C to +400 °C. The new PRESTO® line offers unique high performance specifications to meet these requirements.



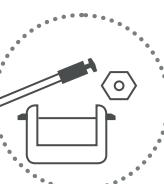
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JULABO facilitates the automation of applications. The temperature control units can be comfortably controlled and monitored via PC.



### Recirculating Coolers

JULABO recirculating coolers are highly efficient and therefore offer an environmentally friendly and economic alternative to tap water cooling in the range of -25 °C to +130 °C.



### Accessories

The extensive range of accessories for all our instruments allows the flexible use of JULABO products in research and industry.

## Comprehensive service and on-site support

JULABO takes pride in offering customers expert advice for pairing the proper JULABO temperature control solution to their specific application. JULABO service and support options include installation and calibration, equipment qualification documentation and application training. These invaluable services ensure customer confidence in the operation and maintenance of their JULABO unit.

## Individual requirements – individual products

The wide range of JULABO offers a solution for almost any application. However, if a specific application needs more than a standard product is able to offer, the JULABO specialists will work out an individual solution with you.

## Technical Specifications and Voltage Options

**Julabo**

Model	Order No.	Working temperature range °C	Setting/ display resolution °C	Temperature control	Temperature stability °C	Heating capacity kW	Bath opening/ bath depth W x L / D cm	Filling volume liters
SW22	9 550 322	+20 ... +99.9	0.1	PID1	±0.2	2	50 x 30 / 18	8 ... 20
SW23	9 550 323	+20 ... +99.9	0.1	PID1	±0.02	2	50 x 30 / 18	8 ... 20

Shaking frequency rpm	Shaking stroke mm	Classification acc. to DIN 12876-1	IP class acc. to IEC 60529	Power requirement V / Hz / A	Dimensions without cover W x D x H cm	Dimensions with cover W x D x H cm	Weight net kg	Model
20 ... 200	15	I (NFL)	IP21	230/50-60/10	70 x 35 x 26	70 x 35 x 43	19.4	SW22
20 ... 200	15	I (NFL)	IP21	230/50-60/10	70 x 35 x 26	70 x 35 x 43	21.4	SW23

### Voltage options for shaking water baths

Available voltage options / Heating capacity kW								
Model	Order No.	230 V 50-60 Hz				115 V 60 Hz		
SW22	9 550 322		2.0				1.0	
SW23	9 550 323		2.0				1.0	



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