

## CORIO CD-310F Refrigerated / heating circulator

Refrigerated / heating circulators of the CORIO CD series distinguish themselves with a great price-to-performance ratio. Durable and dependable, they are suitable for a wide range of standard and routine work in both laboratories and industrial environments.

### With natural refrigerant

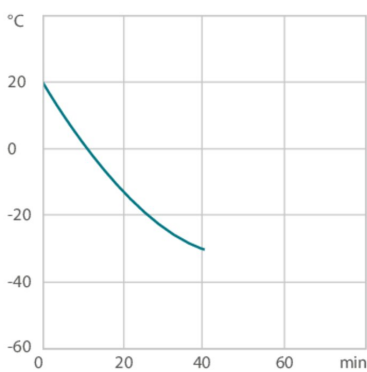
The CORIO CD-310F is available with natural refrigerant. Order No. 9 012 713.N1



### Product features

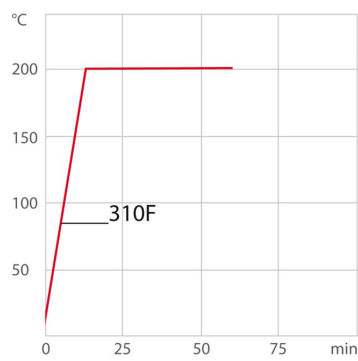
- Models for internal and external applications
- Bright, white, easy to read display
- Very quiet
- USB connection
- Integrated pump connection M16×1
- easy switching between internal and external circulation
- Bath lid and drain tap included
- Removable ventilation grid
- Refrigeration unit without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

### Cool-down time



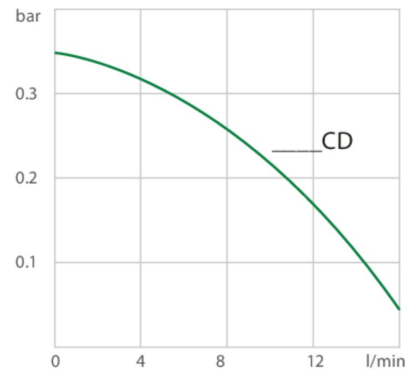
Medium: Ethanol

### Heat-up time



Medium: Thermal

### Pump capacity



Medium: Water

### Performance values

115V/60Hz (Nema N5-15 Plug)	
Heating capacity kW	1
Viscosity max. cSt	50
Pump capacity flow pressure l/min	16
Pump capacity pressure psi	4.8
Power consumption A	12

### Refrigerant variants

Order number including voltage version	9012713.N1.02				
Cooling capacity (Ethanol)					
°C	20	0	-10	-20	-30
kW <sup>1</sup>	0.31	0.28	0.22	0.13	0.03
Note about natural refrigerants: Temperature control units using natural refrigerants are often subject to regulatory requirements regarding the installation site, operation, transport or disposal of the units. If you have any questions, we will be happy to advise you.					
Refrigerant stage 1					
Refrigerant	R290				
Filling weight g	30				
Global Warming Potential for R290	3				
Carbon dioxide equivalent t	9.0E-5				

Order number including voltage version	9012713.S1.02				
Cooling capacity (Ethanol)					
°C	20	0	-10	-20	-30
kW <sup>1</sup>	0.31	0.28	0.22	0.13	0.03
Refrigerant stage 1					
Refrigerant	R449A				
Filling weight g	63				
Global Warming Potential for R449A	1397				
Carbon dioxide equivalent t	0.088011				

<sup>1</sup> Performance specifications measured in accordance with DIN 12876. Cooling capacities up to 20 °C measured with ethanol; over 20 °C with thermal oil unless otherwise specified. Performance specifications apply at an ambient temperature of 20 °C. Performance values may differ with other bath fluids.

### Technical data

Available voltage versions		Cooling	
Order No.	9012713	Cooling of compressor	1-stage Air
Available voltage versions:			
9012713.N1.01	100V/50-60Hz (Nema N5-15 Plug) (R290)		
9012713.S1.01	100V/50-60Hz (Nema N5-15 Plug) (R449A)		
9012713.N1.02	115V/60Hz (Nema N5-15 Plug) (R290)		

9012713.S1.02	115V/60Hz (Nema N5-15 Plug) (R449A)
9012713.N1.03	230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F) (R290)
9012713.S1.03	230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F) (R449A)
9012713.N1.03.chn	230V/50Hz (CN Plug) (R290)
9012713.S1.03.chn	230V/50Hz (CN Plug) (R449A)
9012713.N1.04	230V/50Hz (UK Plug Type BS1363A) (R290)
9012713.S1.04	230V/50Hz (UK Plug Type BS1363A) (R449A)
9012713.N1.05	230V/50Hz (CH Plug Type SEV 1011) (R290)
9012713.S1.05	230V/50Hz (CH Plug Type SEV 1011) (R449A)
9012713.N1.13	230V/60Hz (Nema N6-20 Plug) (R290)
9012713.S1.13	230V/60Hz (Nema N6-20 Plug) (R449A)

Bath	
Bath tank	Stainless steel
Bath cover	integrated
Usable bath opening in. (W x L / D)	5.1 x 5.9 / 5.9

Other	
Classification	Classification III (FL)
IP Code	IP 21
Pump function	Pressure Pump
Pump type	Immersion Pump

Electronics	
Interfaces	USB
Temperature control	PID1
Absolute temperature calibration	1 Point Calibration
Temperature display	LED
Temperature setting	Keypad

Dimensions and volumes	
Weight lbs	55.6
Barbed fittings inner diameter mm	8/12 mm
Total dimensions in. (W x L x H)	9.1 x 15.7 x 25.6
Filling volume l	3 ... 4
Pump connections	M16x1 male

Temperature values	
Setting the resolution of the temperature display °C	0.1
Working temperature range °C	-30 ... +150
Temperature stability °C	±0.03
Ambient temperature °C	+5 ... +40
Temperature display resolution °C	0.01 ... 0.1

Included in delivery
2 Barbed fittings for tubing 8 and 12 mm ID. (Pump connections M16x1 male)

## All Benefits



### Brilliant.

Very bright display makes it easy to read even from a 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.



**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.



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



**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



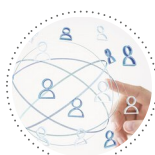
**Connectivity.**  
Remote control made easy. CORIO CD circulators feature a USB connection.



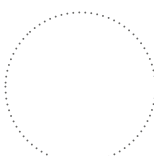
**100% Checked.**  
100% testing. 100% quality. Each JULABO Circulator undergoes thorough quality testing before leaving the factory.



**ATC.**  
Absolute Temperature Calibration, 1-point calibration (CD).



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



**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).



**Quick start.**  
Individual JULABO consultation and comprehensive manuals at your disposal.



**Quick support**  
If an error occurs, the integrated Black-Box function permits fast diagnosis by the JULABO service team