

CF31 Cryo-compact circulator

The cryo-compact circulators of the CF Series provide powerful cooling and heating capabilities in a space-saving, compact design. The instruments feature 2 kW heating capacity and classification III according to DIN 12876-1. The cryo-compact circulators have pump connections for external temperature control applications and a bath opening for temperature control of small objects.



Product features

- Ergonomic design and easy operation
- Small overall dimensions for lowest space requirement
- Splash-proof keypad
- Bright VFD display and interactive LCD dialog display
- Highly precise ICC cascade temperature control
- RS232/RS485 interface for PC connection
- SMART PUMP, electronically adjustable pump stages
- Pt100 External sensor connection for measurement and control
- Integrated programmer for 6 x 60 program steps
- Unique early warning system for low liquid level
- ATC3 3-Point-Calibration
- TCF Temperature Control Features
- Adjustable high temperature cut-out, visible via display
- Pump connections for external temperature applications
- Bath opening for temperature control of small objects in the bath
- Front drain
- Extra bright displays, easy to read from a distance
- Precise temperature control
- Class III (FL) according to DIN 12876-1

Performance values

230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F)	
Heating capacity kW	2
Viscosity max. cSt	70
Pump capacity flow rate l/min	22 ... 26
Pump capacity flow pressure bar	0.4 ... 0.7
Maximum suction bar	0.2 ... 0.4
Power consumption A	11

Order No.	9400331.03		
Cooling capacity (Ethanol)			
°C	20	0	-20
kW	0.32	0.25	0.15
* 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.			
Refrigerant stage 1			
Refrigerant	R134a		
Filling weight g	150		
Global Warming Potential for R134a	1430		
Carbon dioxide equivalent t	0.215		

Technical data

Available voltage versions		Bath	
Order No.	9 400 331	Bath tank	Stainless steel
Available voltage versions:		Bath cover	integrated
9400331.13	230V/60Hz (Nema N6-20 Plug) (R134a)	Usable bath opening cm (W x L / D)	16 x 3 / 14
9400331.02	115V/60Hz (Nema N5-20 Plug) (R134a)		
9400331.03	230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F) (R134a)		
9400331.04	230V/50Hz (UK Plug Type BS1363A) (R134a)		
Cooling		Other	
Cooling of compressor	1-stage Air	Classification	Classification III (FL)
		Pump type	Immersion Pump
Electronics		Dimensions and volumes	
Interfaces	Alarm output optional, REG/EPROG optional, RS485, Standby-Input optional	Weight kg	35
External pt100 sensor connection	integrated	Barbed fittings inner diameter	8/12 mm
Integrated programmer	6x60 steps	Dimensions cm (W x L x H)	24 x 46 x 40
Temperature control	ICC	Filling volume l	2 ... 3.5
Absolute temperature calibration	3 Point Calibration	Pump connections	M16x1 male
Temperature display	LCD		
Temperature values		Included in delivery	
Working temperature range °C	-30 ... +200	2 Barbed fittings for tubing 8 and 12 mm ID. (Pump connections M16x1 male)	
Temperature stability °C	±0.02		
Ambient temperature °C	+5 ... +40		
Temperature display resolution °C	0.01		

All Benefits



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



Green technology.
Development consistently applied environmentally friendly materials and technologies.



JULABO. Quality.
Highest standards of quality for a long product life.



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



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.



Early warning system for high/low temperature limits
Maximum safety for applications, optical and audible alarm, convertible to automated cut-off function



Intelligent temperature control.
Intelligent cascade control - automatic and self-optimizing adaptation of the PID control parameters with external stability of +/- 0.05 °C.



For flammable bath fluid
Classification III (FL) according to DIN 12876-1



ATC3. Calibration.
'Absolute Temperature Calibration' for compensating a physically caused temperature difference, 3-point calibration.



Process. Under control.
Full regulation of the dynamics control, access to all important control parameters for individual process optimization.



100 % Cooling capacity
'Active Cooling Control' for cooling available throughout the entire working temperature range, fast cool-down even at higher temperatures



Energy saving cooling
Proportional cooling control for automatic adjustment of cooling power or temporary switch-off of compressor as needed to save up to 90 % energy in comparison to unregulated cooling machines