

## DYNEO DD-1001F-BF Beer forcing test refrigerated / heating circulating bath

The JULABO beer forcing test bath in conjunction with a photometer determines the product life of beer before clouding. The simulated aging process is achieved through a programmable temperature profile, which is repeated, until the first clouding develops.



### Product features

- Automatic cycles of temperature ramps simulate aging
- Pre-programmed temperature profiles for forcing test
- Program modification possible at any time
- Large bath opening with insert for 20 bottles, 0.5 liters each (Racks for other bottle sizes on request)
- Removable Plexiglass® cover
- RS232 interface for online communication
- powerful and infinitely adjustable pressure pump
- Flow rate 27 l/min, pressure 0.7 bar
- large color TFT display, multilingual interface
- central rotary knob (controller) simplifies operation
- Integrated programmer
- Integrated external Pt100 connection
- PID3 cascade temperature control

### Performance values

230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F)

Heating capacity kW	2
Viscosity max. cSt	50
Pump capacity flow rate l/min	8 ... 27
Pump capacity flow pressure bar	0.1 ... 0.7
Power consumption A	16

Order No. 9021709.33.D

Cooling capacity (Ethanol)

°C	20	10	0	-10	-20	-30
kW <sup>1</sup>	1	0.95	0.85	0.6	0.32	0.12

Refrigerant stage 1

Refrigerant	R449A
Filling weight g	170
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.23749

<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.	9 021 709.D	Cooling of compressor	1-stage Air
Available voltage versions:			
9021709.04.D	230V/50-60Hz (UK Plug Type BS1363A) (R449A)		
9021709.05.D	230V/50-60Hz (CH Plug Type SEV 1011) (R449A)		
9021709.33.D	230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F) (R449A)		
9021709.33.chn.D	230V/50-60Hz (CN Plug) (R449A)		
Bath		Other	
Bath tank	Stainless steel	Classification	Classification III (FL)
Bath cover	integrated	Pump function	Pressure Pump
Usable bath opening cm (W x L / D)	35 x 41 / 30	Pump type	Immersion Pump
		User Interface Language	Chinese, English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish
Electronics		Dimensions and volumes	
Interfaces	Alarm output optional, REG/EPROG optional, RS232 optional, Standby-Input optional, USB	Weight kg	73.7
External pt100 sensor connection	integrated	Barbed fittings inner diameter mm	8/12 mm
Integrated programmer	8x60 steps	Dimensions cm (W x L x H)	45 x 64 x 95
Temperature control	PID3	Filling volume l	48 ... 56
Absolute temperature calibration	3 Point Calibration	Pump connections	M16x1 male
Temperature display	3.5" TFT Display		
Temperature setting	Shaft Encoder		
Electronic Timer h:min	00:00 ... 99:59		
Temperature values		Included in delivery	
Setting the resolution of the temperature display °C	0.01	Stainless steel insert basket for 20 x 0.5 liter bottles Plexiglass bath cover.	
Working temperature range °C	-38 ... +100		
Temperature stability °C	±0.01		
Ambient temperature °C	+5 ... +40		
Setting the resolution of the temperature display °C	0.01		

## All Benefits



**Handle with ease.**  
Makes day-to-day work easy. Comfortably move your JULABO Circulator around by using the ergonomic handles (front and rear).



**Highly precise**  
PID Temperature control with drift compensation and adjustable control parameters, temperature stability  $\pm 0.01 \dots \pm 0.02 \text{ } ^\circ\text{C}$



**Wide range.**  
Refrigerated and heating circulator in various combinations, circulator in various sizes. Maximum flexibility through a large selection of accessories.



**Brilliance. In color.**  
Large color display with vivid luminance is easy to read, even from a large distance.



**Information. Everything clear.**  
Information in plain text on a large color screen.



**Multi-lingual.**  
Operation in multiple languages.



**Turn. Push. Go.**  
Easy operation of all parameters using the central controller.



**Programmer. Integrated.**  
The integrated internal programmer makes it possible to automatically run temperature time profiles.



**Powerful. Adjustable.**  
Strong pressure pump, continuously adjustable.



**USB.**  
Remote control made easy using the integrated USB interface.



**RS232.**  
Connection using the optional RS232 interface.



**Analog I/O.**  
Analog interfaces for integration into process control systems (optional).



**Temperature. Under control.**  
External Pt100 sensor connection for precise measurement and control directly in the external application.



**Fill level. Monitored.**  
Fill level indicator on the display for heat-transfer liquid.



**Process stability.**  
Early warning - visual and acoustic - of critical states increases process stability.



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



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



**Stable. Mobile.**  
Rubber feet keep JULABO Circulators standing firm. Larger and more powerful units also have integrated rollers for easy handling.



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



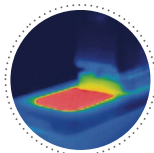
**100 % Cooling capacity**  
'Active Cooling Control' for cooling available throughout the entire working temperature range, fast cool-down even at higher temperatures



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



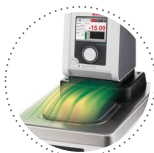
**Space saving. Free up space.**  
Place your JULABO Circulator right next to an application, another unit, or wall. That saves space. This is made possible by eliminating vents and connections on the sides.



**Solid.**  
Minimized energy loss through high-quality insulation.



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



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



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



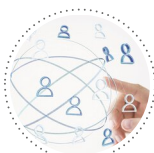
**Green technology.**  
Development consistently applied environmentally friendly materials and technologies.



**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](http://www.julabo.com).