

DYNEO DD-310F Refrigerated / heating circulator

Refrigerated circulators of the DYNEO series distinguish themselves with a great price-performance ratio. The instruments offer high heating/cooling capacities for short heat-up and cool-down times. The refrigerated circulators work precisely and reliably even at higher ambient temperatures up to +40 °C. Either in basic research, in material testing or in technical systems – the DYNEO refrigerated circulators offer functional solutions for every requirement and budget.

Alternatively with natural refrigerant

The DYNEO DD-310F is alternatively available with natural refrigerant. Order No. 9 021 713.N1



Product features

- Optimized cooling coil design saves space in the bath tank
- powerful and infinitely adjustable pressure pump
- Flow rate 27 l/min, pressure 0.7 bar
- easy switching between internal and external circulation
- large color TFT display, multilingual interface
- central rotary knob (controller) simplifies operation
- Integrated programmer
- Integrated external Pt100 connection
- USB connection
- RS232 interface or analog interfaces (optional)
- integrated drain makes emptying liquid easy and safe.
- Bath cover included with delivery
- removable ventilation grid
- Powerful cooling machines
- For internal and external applications
- For internal and external applications

Performance values

115V/60Hz (Nema N5-15 Plug)

Heating capacity kW	1
Viscosity max. cSt	50
Pump capacity flow rate l/min	8 ... 27
Pump capacity flow pressure bar	0.1 ... 0.7
Power consumption A	12

Refrigerant variants

Order No.	9021713.N1.02				
Cooling capacity (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.3	0.27	0.21	0.12	0.02
* 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.					
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	25				
Global Warming Potential for R290	3				
Carbon dioxide equivalent t	7.5E-5				

Order No.	9021713.S1.02				
Cooling capacity (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.3	0.27	0.21	0.12	0.02
* 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	R449A				
Filling weight g	60				
Global Warming Potential for R449A	1397				
Carbon dioxide equivalent t	0.08382				

Technical data

Available voltage versions		Bath	
Order No.	9 021 713	Bath tank	Stainless steel
Available voltage versions:		Bath cover	integrated
9021713.N1.01	100V/50-60Hz (Nema N5-15 Plug) (R290)	Usable bath opening cm (W x L / D)	
9021713.S1.01	100V/50-60Hz (Nema N5-15 Plug) (R449A)	13 x 15 / 15	
9021713.N1.02	115V/60Hz (Nema N5-15 Plug) (R290)		
9021713.S1.02	115V/60Hz (Nema N5-15 Plug) (R449A)		
9021713.N1.33	200-230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F) (R290)		

9021713.S1.33	200-230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F) (R449A)
9021713.N1.33.chn	200-230V/50-60Hz (CN Plug) (R290)
9021713.S1.33.chn	200-230V/50-60Hz (CN Plug) (R449A)
9021713.N1.04	200-230V/50-60Hz (UK Plug Type BS1363A) (R290)
9021713.S1.04	200-230V/50-60Hz (UK Plug Type BS1363A) (R449A)
9021713.N1.05	200-230V/50-60Hz (CH Plug Type SEV 1011) (R290)
9021713.S1.05	200-230V/50-60Hz (CH Plug Type SEV 1011) (R449A)

Cooling

Cooling of compressor	1-stage Air
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Other

Classification	Classification III (FL)
IP Code	IP 21
Pump function	Pressure Pump
Pump type	Immersion Pump
User Interface Language	Chinese, English, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish

Electronics

Interfaces	Alarm output optional, REG/EPROG optional, RS232 optional, Standby-Input optional, USB
External pt100 sensor connection	integrated
Integrated programmer	8x60 steps
Temperature control	PID3
Absolute temperature calibration	3 Point Calibration
Temperature display	3.5" TFT Display
Temperature setting	Shaft Encoder
Electronic Timer hr:min	00:00 ... 99:59

Dimensions and volumes

Weight kg	27.4
Barbed fittings inner diameter	8/12 mm
Dimensions cm (W x L x H)	23 x 40 x 65
Filling volume l	3 ... 4
Pump connections	M16x1 male

Temperature values

Setting the resolution of the temperature display °C	0.01
Working temperature range °C	-30 ... +200
Temperature stability °C	±0.01
Ambient temperature °C	+5 ... +40
Temperature display resolution °C	0.01

Included in delivery

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

All Benefits

**Satisfied customers.**

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

**100% Checked.**

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

**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.

**Quick support**

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

**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 $\pm 0.01 \dots \pm 0.02$ °C

**Turn. Push. Go.**

Easy operation of all parameters using the central controller.

**Wide range.**

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

**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).

**Process stability.**

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

**Connection. Easy.**

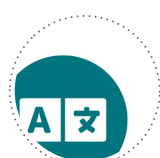
Inclined pump connections (M16×1) facilitate the connection of applications. Each unit includes 2 barbed fittings of 8/12 mm diameter each.

**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.

**Programmer. Integrated.**

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

**Powerful. Adjustable.**

Strong pressure pump, continuously adjustable.

**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.



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



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



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



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