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

- For internal and external applications
- 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
- Space-saving cooling coil design provides more usable space in the bath tank
- For internal and external applications
- Powerful cooling machines

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 psi	1.5 ... 10.2
Power 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 DIN12876. 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	R290
Filling volume g	25
Global Warming Potential for R290	3
Carbon dioxide equivalent t	0

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 DIN12876. 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 volume g	60
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.084

Technical data

Available voltage versions

Order No.	9 021 713
Available voltage versions:	
9021713.N1.01	100V/50-60Hz (Nema N5-15 Plug) (R290)
9021713.S1.01	100V/50-60Hz (Nema N5-15 Plug) (R449A)
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)

Bath

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

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

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

Dimensions and volumes

Weight lbs	60.4
Barbed fittings inner diameter	8/12 mm
Dimensions in. (W × L × 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	0.01
Working temperature range °C	-30 ... +200
Temperature stability °C	±0.01
Ambient temperature °C	+5 ... +40

Included in delivery

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

All Benefits

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

Highly precise
PID Temperature control with drift compensation and adjustable control parameters, temperature stability ±0.01...±0.02 °C

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

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

RS232.
Standard connection using the serial 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.

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

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.

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

Stable. Mobile.

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

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