Product data sheet

DYNEO DD-650F Refrigerated / heating circulator

New temperature control technology for demanding applications



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.

The DYNEO DD-650F refrigerated circulator, with a working temperature range of -40 ... 200 °C, delivers a powerful cooling capacity of 0.67 kW at 20 °C despite its very compact design. The cooling machine operates with a natural, environmentally friendly refrigerant. Thanks to the optimized refrigerant cycle, the machine requires only 65 g of refrigerant. This allows for flexible use at the site and shipment via air freight.

Optional analog and digital interface

DYNEO circulators can optionally be equipped with analogue or digital interfaces. To request the options, order number must be extended with .d for the digital and .a for the analog interface (9XXX XXXX.A / 9XXX XXX.D)



Product Features

- powerful and infinitely adjustable pressure pump
- easy switching between internal and external circulation
- large color TFT display, multilingual interface
- central rotary knob (controller) simplifies operation
- RS232 interface or analog interfaces (optional)
- integrated drain makes emptying liquid easy and safe.
- removable ventilation grid
- For internal and external applications

Available options

Interfaces

Digital interface

Digital interface for controlling the circulator via RS232.



Analogue interface

Analog interface includes Standby, Reg-Eprog and alarm output for DYNEO circulators.



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 pressure bar	0.1 ... 0.7
Voltage Tolerance %	230V | -10 / +5

Order number including voltage version (230V/50Hz)	9021730.N1.33

Cooling capacity 1 (Ethanol)

°C	20	0	-20	-30
kW [1]	0.67	0.54	0.26	0.11

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	65
Global Warming Potential for R290	3
Carbon dioxide equivalent t	0.000195

[1] 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	
Order No.	9021730
9021730.N1.02	115V 60Hz (Nema N5-15 Plug) (R290)
9021730.N1.33	200-230V 50/60Hz (Schuko Plug - CEE 7/4 Plug Type F) (R290)
9021730.N1.04	200-230V 50/60Hz (UK Plug Type BS1363A) (R290)
9021730.N1.05	200-230V 50/60Hz (CH Plug Type T12 / 10A) (R290)
9021730.N1.33.chn	200-230V 50/60Hz (CN Plug) (R290)

Cooling

Cooling of compressor	1-stage Air

Bath

Bath tank	Stainless steel
Bath cover	integrated
Usable bath opening cm (W x L / D)	18 x 13 / 15

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 h:min	00:00 ... 99:59

Dimensions and volumes

Weight kg	35.7
Barbed fittings inner diameter mm	8/12 mm
Total dimensions cm (W × L × H)	33 x 47 x 70
Filling volume l	5 ... 7.5
Pump connections	M16x1 male

Temperature values

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

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

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 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 ±0.01...±0.02 °C



Wide range.

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



Turn. Push. Go.

Easy operation of all parameters using the central controller.



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.

ATC3. Calibration.

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



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



Stable. Mobile.

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

Refer to www.julabo.com for more information regarding the entire JULABO product portfolio. Technical changes without prior notification. Images may deviate from the original. | Datasheet No.EN9021730/261117