Product data sheet

MAGIO MS-650F Refrigerated / heating circulator

with extremely powerful pressure/suction pump and intuitive touch display



As with all circulators from the MAGIO range, the refrigerated circulators stand out thanks to their premium quality, high performance and intuitive operation. The devices offer extra strong pressure and suction pumps, thus fulfilling the highest demands for temperature control of external applications. Whether in basic research, material testing or technical systems – the MAGIO refrigerated circulators offer high-tech solutions for high customer requirements.

The MAGIO MS-650F refrigerated circulator, with a working temperature range of -40 ... 200 °C, delivers a powerful cooling capacity up to 0.69 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.

High resolution TFT touch display

The modern TFT touch display gives you all the important information at a glance. Three large, predefined main screens clearly display data and graphics with various application priorities. Menu navigation is self-explanatory, arranged by relevance to daily operations and easy to operate with the touch of a finger. The in-built help function provides detailed support in case of additional questions.



Product Features

- Ideal for demanding external applications
- Continuously adjustable, extremely powerful pressure / suction pump
- Parts being in contact with the medium made of stainless steel
- analog interfaces (accessory)
- Connections for solenoid valve
- NRTL certification for the U.S. and Canada: Available upon request

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	16 ... 31
Pump capacity pressure bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4
Voltage Tolerance %	230V | -10 / +5

Order number including voltage version (230V/50Hz) 9032730.N1.33

Cooling capacity 1 (Ethanol)

°C	20	0	-20	-30
kW [1]	0.69	0.56	0.28	0.13

Cooling capacity 2 (Ethanol)

°C	20	0	-20	-30
kW [1]	0.63	0.5	0.22	0.07

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.
Cooling capacity 1 = capacity at minimum pump level,
cooling capacity 2 = capacity at maximum pump level

Technical data

Available voltage versions	
Order No.	9032730
9032730.N1.02	115V 60Hz (Nema N5-15 Plug) (R290)
9032730.N1.05	200-230V 50/60Hz (CH Plug Type T12 / 10A) (R290)
9032730.N1.04	200-230V 50/60Hz (UK Plug Type BS1363A) (R290)
9032730.N1.33	200-230V 50/60Hz (Schuko Plug - CEE 7/4 Plug Type F) (R290)
9032730.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	Ethernet, Modbus TCP/IP, RS232, RS485, Stakei, USB
External pt100 sensor connection	integrated
Integrated programmer	8x60 steps
Temperature control	ICC
Absolute temperature calibration	10 Point Calibration
Temperature display	7" TFT Touchscreen
Temperature setting	Touchscreen
Electronic Timer h:min	00:00 ... 99:59

Dimensions and volumes

Weight kg	38.3
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 20
Pump function	Pressure Suction Pump
Pump type	Immersion Pump
User Interface Language	Chinese, Czech, Dutch, English, French, German, Italian, Japanese, Korean, Polish, Portuguese, Russian, Spanish, Turkish

Included in delivery

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

All Benefits

Intelligent temperature control.

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

Many interfaces.

Straight-forward remote control, data management, and integration into process structures. USB, Ethernet, RS232, SD card, and alarm off are permanently integrated. Further interfaces available as accessories.

Touch display. Perfect operation.

With the touch display, the user always has an overview of all values and functions. The intuitive and multilingual menu structure enables perfect control.

Maximum safety.

Classification III according to DIN12876-1 enables safe operation, even with flammable fluids. Automatic switch-off in the event of high temperature or low liquid level.



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.

Multi-lingual.

Operation in multiple languages.

Julabo

Programmer. Integrated.

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



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.



Stable. Mobile.

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



Energy-saving.

The high-quality insulation of all relevant components saves energy.



Everything made of stainless steel.

Quality and material compatibility at the highest level. All parts in contact with the medium are entirely made of stainless steel.



Most powerful pump.

The integrated pressure/suction pump with performance values of 0.9 bar and -0.4 bar is the most powerful in its class and continuously adjustable.



Wide range.

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



Condensation protection.

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



Connection. Easy.

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



Highest measuring accuracy

'Absolute Temperature Calibration' for manual compensation of a temperature difference, 10-point calibration

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.EN9032730/261109