

MAGIO MS-310F Refrigerated / heating circulator

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.

Alternatively with natural refrigerant
The MAGIO MS-310F is alternatively available with natural refrigerant. Order No.. 9 032 713.N1



Product features

- Ideal for demanding external applications
- Simple control of complex applications
- Continuously adjustable, extremely powerful pressure / suction pump
- Flow rate 16 ... 31 l / min, pressure 0.24 ... 0.92 bar, suction 0.03 ... 0.4 bar
- Large, high-resolution TFT touch display with multilingual user interface
- Parts being in contact with the medium made of stainless steel
- Integrated programmer
- Integrated external Pt100 connection
- USB connection
- RS232 interface for online communication
- Ethernet
- analog interfaces (accessory)
- Class III (FL) according to DIN 12876-1
- Modbus
- Profibus DP (Accessory)
- RS232/RS485 interface for online communication
- Connections for solenoid valve

Technical data

Available voltage versions		Bath	
Order No.	9 032 713	Bath tank	Stainless steel
Available voltage versions:		Bath cover	integrated
9 032 713.01	100V/50-60Hz (Nema N5-15 Plug)	Usable bath opening in. (W x L / D)	5.1 x 5.9 / 5.9
9 032 713.02	115V/60Hz (Nema N5-15 Plug)		
9 032 713.33	200-230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F)		
9 032 713.33.chn	200-230V/50-60Hz (CN Plug)		
9 032 713.04	200-230V/50-60Hz (UK Plug Type BS1363A)		
9 032 713.05	200-230V/50-60Hz (CH Plug Type SEV 1011)		
Cooling		Other	
Cooling of compressor	1-stage Air	Classification	Classification III (FL)
		IP Code	IP 21
		Hint to the technical data table	Cooling capacity 1 = capacity at minimum pump level, cooling capacity 2 = capacity at maximum pump level

Electronics	
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 hr:min	00:00 ... 99:59

Temperature values	
Setting the resolution of the temperature display °C	0.01
Working temperature range °C	-30.0 ... +200.0
Temperature stability °C	+/-0.01
Ambient temperature °C	+10.0 ... +40.0
Temperature display resolution °C	0.01

Pump function	Pressure Suction Pump
Pump type	Immersion Pump
Dimensions and volumes	
Weight lbs	63.9
Dimensions in. (W x L x H)	9.1 x 15.7 x 25.6
Filling volume l	3 ... 4
Pump connections	M16x1 male

Performance values

100V/50-60Hz (Nema N5-15 Plug)

100V/50Hz	
Heating capacity kW	0.8
Cooling capacity 1 (Ethanol)	
°C	20 0 -10 -20 -30
kW	0.33 0.21 0.17 0.13 0.05
Cooling capacity 2 (Ethanol)	
°C	200 20 0 -10 -20 -30
kW	0.26 0.26 0.21 0.17 0.1 0.01
Viscosity max. cST	70
Refrigerant	R449A
Filling volume g	60
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.084
Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure psi	3.5 ... 13.3
Maximum suction psi	-0.4 ... -5.8
Power	12 A

100V/60Hz	
Heating capacity kW	0.8
Cooling capacity 1 (Ethanol)	
°C	20 0 -10 -20 -30
kW	0.33 0.28 0.23 0.13 0.05
Cooling capacity 2 (Ethanol)	
°C	20 0 -10 -20 -30
kW	0.26 0.21 0.17 0.1 0.01
Viscosity max. cST	70
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Filling volume g	60
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Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure psi	3.5 ... 13.3
Maximum suction psi	-0.4 ... -5.8
Power	12 A

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

115V/60Hz	
Heating capacity kW	1

Cooling capacity 1 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.33	0.28	0.23	0.13	0.05

Cooling capacity 2 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.26	0.21	0.17	0.1	0.05

Viscosity max. cST	70
Refrigerant	R449A
Filling volume g	60
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.084
Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure psi	3.5 ... 13.3
Maximum suction psi	-0.4 ... -5.8
Power	12 A

200-230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F)

200V/50Hz					
Heating capacity kW	2				
Cooling capacity 1 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.33	0.28	0.23	0.13	0.05
Cooling capacity 2 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.26	0.21	0.17	0.1	0.01
Viscosity max. cST	70				
Refrigerant	R449A				
Filling volume g	60				
Global Warming Potential for R449A	1397				
Carbon dioxide equivalent t	0.084				
Pump capacity flow rate l/min	16 ... 31				
Pump capacity flow pressure psi	3.5 ... 13.3				
Maximum suction psi	-0.4 ... -5.8				
Power	13 A				

200V/60Hz					
Heating capacity kW	2				
Cooling capacity 1 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.33	0.28	0.23	0.13	0.05
Cooling capacity 2 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.26	0.21	0.17	0.1	0.01
Viscosity max. cST	70				
Refrigerant	R449A				
Filling volume g	60				
Global Warming Potential for R449A	1397				
Carbon dioxide equivalent t	0.084				
Pump capacity flow rate l/min	16 ... 31				
Pump capacity flow pressure psi	3.5 ... 13.3				
Maximum suction psi	-0.4 ... -5.8				
Power	13 A				

230V/50Hz					
Heating capacity kW	2				
Cooling capacity 1 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.33	0.28	0.23	0.13	0.05
Cooling capacity 2 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.26	0.21	0.17	0.1	0.01
Viscosity max. cST	70				
Refrigerant	R449A				
Filling volume g	60				

230V/60Hz					
Heating capacity kW	2				
Cooling capacity 1 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.33	0.28	0.23	0.13	0.05
Cooling capacity 2 (Ethanol)					
°C	20	0	-10	-20	-30
kW	0.26	0.21	0.17	0.1	0.01
Viscosity max. cST	70				
Refrigerant	R449A				
Filling volume g	60				

Global Warming Potential for R449A	1397	Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.084	Carbon dioxide equivalent t	0.084
Pump capacity flow rate l/min	16 ... 31	Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure psi	3.5 ... 13.3	Pump capacity flow pressure psi	3.5 ... 13.3
Maximum suction psi	-0.4 ... -5.8	Maximum suction psi	-0.4 ... -5.8
Power	13 A	Power	13 A

200-230V/50-60Hz (CN Plug)

200V/50Hz						200V/60Hz					
Heating capacity kW						Heating capacity kW					
2						2					
Cooling capacity 1 (Ethanol)						Cooling capacity 1 (Ethanol)					
°C	20	0	-10	-20	-30	°C	20	0	-10	-20	-30
kW	0.33	0.28	0.23	0.13	0.05	kW	0.33	0.28	0.23	0.13	0.05
Cooling capacity 2						Cooling capacity 2 (Ethanol)					
°C	20	0	-10	-20	-30	°C	20	0	-10	-20	-30
kW	0.26	0.21	0.17	0.1	0.01	kW	0.26	0.21	0.17	0.1	0.01
Viscosity max. cST	70					Viscosity max. cST	70				
Refrigerant	R449A					Refrigerant	R449A				
Filling volume g	60					Filling volume g	60				
Global Warming Potential for R449A	1397					Global Warming Potential for R449A	1397				
Carbon dioxide equivalent t	0.084					Carbon dioxide equivalent t	0.084				
Pump capacity flow rate l/min	16 ... 31					Pump capacity flow rate l/min	16 ... 31				
Pump capacity flow pressure psi	3.5 ... 13.3					Pump capacity flow pressure psi	3.5 ... 13.3				
Maximum suction psi	-0.4 ... -5.8					Maximum suction psi	-0.4 ... -5.8				
Power	13 A					Power	13 A				

230V/50Hz						230V/60Hz					
Heating capacity kW						Heating capacity kW					
2						2					
Cooling capacity 1 (Ethanol)						Cooling capacity 1 (Ethanol)					
°C	20	0	-10	-20	-30	°C	20	0	-10	-20	-30
kW	0.33	0.28	0.23	0.13	0.05	kW	0.33	0.28	0.23	0.13	0.05
Cooling capacity 2 (Ethanol)						Cooling capacity 2 (Ethanol)					
°C	20	0	-10	-20	-30	°C	20	0	-10	-20	-30
kW	0.26	0.21	0.17	0.1	0.01	kW	0.26	0.21	0.17	0.1	0.01
Viscosity max. cST	70					Viscosity max. cST	70				
Refrigerant	R449A					Refrigerant	R449A				
Filling volume g	60					Filling volume g	60				
Global Warming Potential for R449A	1397					Global Warming Potential for R449A	1397				
Carbon dioxide equivalent t	0.084					Carbon dioxide equivalent t	0.084				
Pump capacity flow rate l/min	16 ... 31					Pump capacity flow rate l/min	16 ... 31				
Pump capacity flow pressure psi	3.5 ... 13.3					Pump capacity flow pressure psi	3.5 ... 13.3				
Maximum suction psi	-0.4 ... -5.8					Maximum suction psi	-0.4 ... -5.8				
Power	13 A					Power	13 A				

200-230V/50-60Hz (UK Plug Type BS1363A)

200V/50Hz						200V/60Hz					
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Heating capacity kW		2				
Cooling capacity 1 (Ethanol)						
°C	20	0	-10	-20	-30	
kW	0.33	0.28	0.23	0.13	0.05	
Cooling capacity 2 (Ethanol)						
°C	20	0	-10	-20	-30	
kW	0.26	0.21	0.17	0.1	0.01	
Viscosity max. cST						70
Refrigerant						R449A
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Carbon dioxide equivalent t						0.084
Pump capacity flow rate l/min						16 ... 31
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Power						13 A

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Cooling capacity 1 (Ethanol)						
°C	20	0	-10	-20	-30	
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Viscosity max. cST						70
Refrigerant						R449A
Filling volume g						60
Global Warming Potential for R449A						1397
Carbon dioxide equivalent t						0.084
Pump capacity flow rate l/min						16 ... 31
Pump capacity flow pressure psi						3.5 ... 13.3
Maximum suction psi						-0.4 ... 0.6
Power						13 A

230V/50Hz						
Heating capacity kW		2				
Cooling capacity 1 (Ethanol)						
°C	20	0	-10	-20	-30	
kW	0.33	0.28	0.23	0.13	0.05	
Cooling capacity 2						
°C	20	0	-10	-20	-30	
kW	0.26	0.21	0.17	0.1	0.01	
Viscosity max. cST						70
Refrigerant						R449A
Filling volume g						60
Global Warming Potential for R449A						1397
Carbon dioxide equivalent t						0.084
Pump capacity flow rate l/min						16 ... 31
Pump capacity flow pressure psi						3.5 ... 13.3
Maximum suction psi						-0.4 ... -5.8
Power						13 A

230V/60Hz						
Heating capacity kW		2				
Cooling capacity 1 (Ethanol)						
°C	20	0	-10	-20	-30	
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Refrigerant						R449A
Filling volume g						60
Global Warming Potential for R449A						1397
Carbon dioxide equivalent t						0.084
Pump capacity flow rate l/min						16 ... 31
Pump capacity flow pressure psi						3.5 ... 13.3
Maximum suction psi						-0.4 ... -5.8
Power						13 A

200-230V/50-60Hz (CH Plug Type SEV 1011)

200V/50Hz						
Heating capacity kW		2				
Cooling capacity 1 (Ethanol)						
°C	20	0	-10	-20	-30	
kW	0.33	0.28	0.23	0.13	0.05	
Cooling capacity 2 (Ethanol)						
°C	20	0	-10	-20	-30	
kW	0.26	0.21	0.17	0.1	0.01	
Viscosity max. cST						70
Refrigerant						R449A

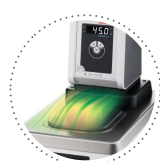
200V/60Hz						
Heating capacity kW		2				
Cooling capacity 1 (Ethanol)						
°C	20	0	-10	-20	-30	
kW	0.33	0.28	0.23	0.13	0.05	
Cooling capacity 2 (Ethanol)						
°C	20	0	-10	-20	-30	
kW	0.26	0.21	0.17	0.1	0.01	
Viscosity max. cST						70
Refrigerant						R449A

Filling volume g	60	Filling volume g	60
Global Warming Potential for R449A	1397	Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.084	Carbon dioxide equivalent t	0.084
Pump capacity flow rate l/min	16 ... 31	Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure psi	3.5 ... 13.3	Pump capacity flow pressure psi	3.5 ... 13.3
Maximum suction psi	-0.4 ... -5.8	Maximum suction psi	-0.4 ... -5.8
Power	10 A	Power	10 A
230V/50Hz		230V/60Hz	
Heating capacity kW	2	Heating capacity kW	2
Cooling capacity 1 (Ethanol)		Cooling capacity 1 (Ethanol)	
°C	20 0 -10 -20 -30	°C	20 0 -10 -20 -30
kW	0.33 0.28 0.23 0.13 0.05	kW	0.33 0.28 0.23 0.13 0.05
Cooling capacity 2 (Ethanol)		Cooling capacity 2 (Ethanol)	
°C	20 0 -10 -20 -30	°C	20 0 -10 -20 -30
kW	0.26 0.21 0.17 0.1 0.01	kW	0.26 0.21 0.17 0.1 0.01
Viscosity max. cST	70	Viscosity max. cST	70
Refrigerant	R449A	Refrigerant	R449A
Filling volume g	60	Filling volume g	60
Global Warming Potential for R449A	1397	Global Warming Potential for R449A	1397
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Pump capacity flow rate l/min	16 ... 31	Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure psi	3.5 ... 13.3	Pump capacity flow pressure psi	3.5 ... 13.3
Maximum suction psi	-0.4 ... -5.8	Maximum suction psi	-0.4 ... -5.8
Power	10 A	Power	10 A

All Benefits



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



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



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



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



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



Internal. External.
The pump is controlled via a lever located directly below the display. Easily change between internal and external circulation.



JULABO. Quality.
Highest standards of quality for a long product life.



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



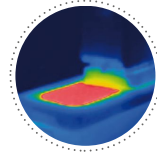
Quick start.
Individual JULABO consultation and comprehensive manuals at your disposal.



Safety.
CORIO CD and CP comply with Class III (FL) according to DIN 12876-1 and switches off automatically in case of high temperature or low liquid level alarm.



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



Solid.
Minimized energy loss through high-quality insulation.



Services 24/7.
Around the clock availability. You can find suitable accessories, data sheets, manuals, case studies, and more at www.julabo.com.



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



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.



Stable.
Rubber feet allow for a secured footing of your CORIO to prevent damage to your laboratory equipment.



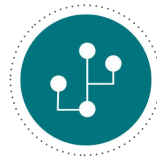
Tidy.
The special drain tap for easy draining of bath fluids without tools.



Touching permitted.
Optimum safety. The ergonomic plastic handle protects your fingers from hot surfaces.



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.



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.



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.



Multi-lingual.
Operation in multiple languages.



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



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



Stable. Mobile.



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.



Wide range.

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



Connection. Easy.

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



Analog I/O.

Analog interfaces for integration into process control systems (optional).



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.



Condensation protection.

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