

MAGIO MS-310F Refrigeration / 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.. 9 032 743



Your advantages

- Powerful and infinitely adjustable pressure pump
- Bright, white, easy to read display
- Easy pump change-over between internal and external circulation
- USB connection
- Combined RS232/RS485 interface for serial data transmission according to the EIA-485 industry standard (2-wire bus technology), upgradeable with Profibus DP
- Class III (FL) according to DIN 12876-1
- External pump connections
- Removable ventilation grid
- Space-saving cooling coil design yields more usable space in the bath tank
- RS232 interface for online communication
- Refrigeration unit without side vents
- Very quiet
- Models for internal and external applications
- Bath lid and drain tap included

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 cm (W x L / D)	13 x 15 / 15
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)		
9 032 713.33	200-230V/50-60Hz (UK Plug Type BS1363A)		
9 032 713.33	200-230V/50-60Hz (CH Plug Type SEV 1011)		
Cooling		Other	
Cooling of compressor	1-stage Air	Classification	Classification III (FL)
		IP Code	IP 20
		Pump function	Pressure Suction Pump
		Pump type	Immersion Pump
Electronics		Dimensions and volumes	
External pt100 sensor connection	integrated	Weight kg	29
Integrated programmer	8x60 steps	Dimensions cm (W x L x H)	23 x 40 x 65

Temperature control	ICC	Filling volume l	3 ... 4
Absolute temperature calibration	3 Point Calibration	Pump connections	M16x1 male
Temperature display	7" TFT Touchscreen		
Temperature setting	Touchscreen		
Electronic Timer hr:min	00:00 ... 00:00		

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

Performance values

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

100V/50Hz

Heating capacity kW	0.8
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Cooling capacity (Ethanol)

°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.21	0.17	0.13	0.05

Cooling capacity (Ethanol)

°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	60
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.084
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Pump capacity flow rate l/min	16 ... 31
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Pump capacity flow pressure bar	0.24 ... 0.92
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Maximum suction bar	-0.03 ... -0.4
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100V/60Hz

Heating capacity kW	0.8
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Cooling capacity (Ethanol)

°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)

°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

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Pump capacity flow rate l/min	16 ... 31
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Pump capacity flow pressure bar	0.24 ... 0.92
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Maximum suction bar	-0.03 ... -0.4
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115V/60Hz (Nema N5-15 Plug)

115V/60Hz

Heating capacity kW	1
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Cooling capacity (Ethanol)

°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)

°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.01	0.05

Viscosity max. cST	50
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Refrigerant	R449A
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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 bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4

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

200V/50Hz						
Heating capacity kW		2				
Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05
Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01
Viscosity max. cST		50				
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 bar		0.24 ... 0.92				
Maximum suction bar		-0.03 ... -0.4				

200V/60Hz						
Heating capacity kW		2				
Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05
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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 bar		0.24 ... 0.92				
Maximum suction bar		-0.03 ... -0.4				

230V/50Hz						
Heating capacity kW		2				
Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05
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°C	200	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 bar		0.24 ... 0.92				
Maximum suction bar		-0.03 ... -0.4				

230V/60Hz						
Heating capacity kW		2				
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°C	200	20	0	-10	-20	-30
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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 bar		0.24 ... 0.92				
Maximum suction bar		-0.03 ... -0.4				

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

200V/50Hz	
Heating capacity kW	2

200V/60Hz	
Heating capacity kW	2

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
Refrigerant	R449A
Filling volume g	60
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Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

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°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

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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 bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4

230V/50Hz						
Heating capacity kW	2					

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
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Carbon dioxide equivalent t	0.084
Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4

230V/60Hz						
Heating capacity kW	2					

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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 bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4

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

200V/50Hz						
Heating capacity kW	2					

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
Refrigerant	R449A
Filling volume g	60
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.084

200V/60Hz						
Heating capacity kW	2					

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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 bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4

230V/50Hz

Heating capacity kW	2
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Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	60
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.084
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Pump capacity flow rate l/min	16 ... 31
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Pump capacity flow pressure bar	0.24 ... 0.92
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Maximum suction bar	-0.03 ... -0.4
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Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... 0.04

230V/60Hz

Heating capacity kW	2
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Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	60
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.084
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Pump capacity flow rate l/min	16 ... 31
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Pump capacity flow pressure bar	0.24 ... 0.92
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Maximum suction bar	-0.03 ... -0.4
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200-230V/50-60Hz (CH Plug Type SEV 1011)

200V/50Hz

Heating capacity kW	2
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Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	60
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Pump capacity flow rate l/min	16 ... 31
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Pump capacity flow pressure bar	0.24 ... 0.92
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Maximum suction bar	-0.03 ... -0.4
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200V/60Hz

Heating capacity kW	2
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Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

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°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	60
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.084
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Pump capacity flow rate l/min	16 ... 31
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Pump capacity flow pressure bar	0.24 ... 0.92
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Maximum suction bar	-0.03 ... -0.4
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230V/50Hz

Heating capacity kW	2
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Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

230V/60Hz

Heating capacity kW	2
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Cooling capacity (Ethanol)						
°C	200	20	0	-10	-20	-30
kW	0.33	0.33	0.28	0.23	0.13	0.05

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°C	200	20	0	-10	-20	-30
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Pump capacity flow rate l/min	16 ... 31
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Cooling capacity (Ethanol)

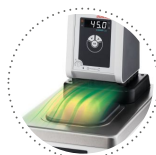
°C	200	20	0	-10	-20	-30
kW	0.26	0.26	0.21	0.17	0.1	0.01

Viscosity max. cST	50
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Maximum suction bar	-0.03 ... -0.4

All Benefits



ATC.
Absolute Temperature Calibration, 1-point calibration (CD).



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



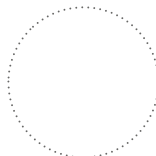
Handle with ease.
Makes day-to-day work easy. Comfortably move your JULABO Circulator around by using the ergonomic handles (front and rear).



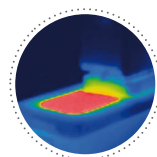
Internal. External.
The pump is controlled via a lever located directly below the display. Easily change between internal and external circulation.



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



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.



Solid.
Minimized energy loss through high-quality insulation.



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.



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



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



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.



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.



Connection. Easy.
Inclined pump connections (M16x1) facilitate the connection of applications. Each unit includes 2 barbed fittings of 8/12 mm diameter each.



Temperature. Under control.
External Pt100 sensor connection for precise measurement and control directly in the external application.



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.



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



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



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



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.



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.



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.



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.



Most powerful pump.
The integrated pressure/suction pump with performance values of 0.9 bar and -0.5 bar is the most powerful in its class and continuously adjustable.



Fill level. Monitored.
Fill level indicator on the display for heat-transfer liquid.



Multi-lingual.
Operation in multiple languages.



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



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