

## MAGIO MS-900F 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.

### 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.



### Your advantages

- Combined RS232/RS485 interface for serial data transmission according to the EIA-485 industry standard (2-wire bus technology), upgradeable with Profibus DP

### Technical data

<b>Available voltage versions</b>		<b>Bath</b>	
Order No.	9 032 706	Bath tank	Stainless steel
Available voltage versions:		Bath cover	integrated
9 032 706.02	115V/60Hz (Nema N5-20 Plug)	Usable bath opening cm (W x L / D)	26 x 35 / 20
9 032 706.05	200-230V/50-60Hz (CH Plug Type SEV 1011)		
9 032 706.04	200-230V/50-60Hz (UK Plug Type BS1363A)		
9 032 706.33	200-230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F)		
9 032 706.33.chn	200-230V/50-60Hz (CN Plug)		
<b>Cooling</b>		<b>Other</b>	
Cooling of compressor	1-stage Air	Classification	Classification III (FL)
		IP Code	IP 20
		Pump function	Pressure Suction Pump
		Pump type	Immersion Pump
<b>Electronics</b>		<b>Dimensions and volumes</b>	
External pt100 sensor connection	integrated	Weight kg	54.9
Integrated programmer	8x60 steps	Dimensions cm (W x L x H)	39 x 62 x 75
Temperature control	ICC	Filling volume l	21 ... 30
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		
<b>Temperature values</b>			

Setting the resolution of the temperature display °C	0.01
Working temperature range °C	-38 ... +200.0
Temperature stability °C	+/-0.01
Ambient temperature °C	+10.0 ... +40.0
Temperature display resolution °C	0.01

### Performance values

#### 115V/60Hz (Nema N5-20 Plug)

115V/60Hz							
Heating capacity kW	1						
Cooling capacity (Ethanol)							
°C	200	20	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11
Viscosity max. cST	50						
Refrigerant	R449A						
Filling volume g	220						
Global Warming Potential for R449A	1397						
Carbon dioxide equivalent t	0.307						
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 (CH Plug Type SEV 1011)

200V/50Hz							
Heating capacity kW	1.6						
Cooling capacity (Ethanol)							
°C	200	20	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11
Viscosity max. cST	50						
Refrigerant	R449A						
Filling volume g	220						
Global Warming Potential for R449A	1397						
Carbon dioxide equivalent t	0.307						
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	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11
Viscosity max. cST	50						

200V/60Hz							
Heating capacity kW	1.6						
Cooling capacity (Ethanol)							
°C	200	20	10	0	-10	-20	-30
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Carbon dioxide equivalent t	0.307						
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	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11
Viscosity max. cST	50						

Refrigerant	R449A
Filling volume g	220
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
Pump capacity flow rate l/min	16 ... 31
Pump capacity flow pressure bar	0.24 ... 0.92
Maximum suction bar	-0.03 ... -0.4

Refrigerant	R449A
Filling volume g	220
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
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	1.6						
Cooling capacity							
°C	200	20	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11

Viscosity max. cST	50
Refrigerant	R449A
Filling volume g	220
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
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	1.6						
Cooling capacity (Ethanol)							
°C	200	20	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11

Viscosity max. cST	50
Refrigerant	R449A
Filling volume g	220
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
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	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11

Viscosity max. cST	50
Refrigerant	R449A
Filling volume g	220
Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
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	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11

Viscosity max. cST	50
Refrigerant	R449A
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Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
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	1.6						
Cooling capacity (Ethanol)							
°C	200	20	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11

Viscosity max. cST	50
Refrigerant	R449A
Filling volume g	220

**200V/60Hz**

Heating capacity kW	1.6						
Cooling capacity (Ethanol)							
°C	200	20	10	0	-10	-20	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11

Viscosity max. cST	50
Refrigerant	R449A
Filling volume g	220

Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
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	10	0	-10	-20	-25	-30
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11	0.04

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	220
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.307
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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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Global Warming Potential for R449A	1397
Carbon dioxide equivalent t	0.307
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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Cooling capacity (Ethanol)								
°C	200	20	10	0	-10	-20	-30	
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11	

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	220
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.307
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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 (CN Plug)**

**200V/50Hz**

Heating capacity kW	1.6
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Cooling capacity (Ethanol)								
°C	200	20	10	0	-10	-20	-30	
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11	

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	220
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.307
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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	1.6
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Cooling capacity (Ethanol)								
°C	200	20	10	0	-10	-20	-30	
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11	

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	220
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.307
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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	10	0	-10	-20	-30	
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11	

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	220
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.307
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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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**230V/60Hz**

Heating capacity kW	2
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Cooling capacity (Ethanol)								
°C	200	20	10	0	-10	-20	-30	
kW	0.9	0.9	0.85	0.8	0.52	0.31	0.11	

Viscosity max. cST	50
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Refrigerant	R449A
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Filling volume g	220
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Global Warming Potential for R449A	1397
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Carbon dioxide equivalent t	0.307
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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	Maximum suction bar	-0.03 ... -0.4
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### All Benefits

 <p><b>100% Checked.</b> 100% testing. 100% quality. Each JULABO Circulator undergoes thorough quality testing before leaving the factory.</p>	 <p><b>Green technology.</b> Development consistently applied environmentally friendly materials and technologies.</p>
 <p><b>Intelligent temperature control.</b> Intelligent cascade control - automatic and self-optimizing adaptation of the PID control parameters with external stability of +/- 0.05 °C.</p>	 <p><b>JULABO. Quality.</b> Highest standards of quality for a long product life.</p>
 <p><b>Quick start.</b> Individual JULABO consultation and comprehensive manuals at your disposal.</p>	 <p><b>Satisfied customers.</b> 11 subsidiaries and more than 100 partners worldwide guarantee fast and qualified JULABO support.</p>
 <p><b>Services 24/7.</b> Around the clock availability. You can find suitable accessories, data sheets, manuals, case studies, and more at <a href="http://www.julabo.com">www.julabo.com</a>.</p>	 <p><b>Many interfaces.</b> 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.</p>
 <p><b>Connection. Easy.</b> Inclined pump connections (M16x1) facilitate the connection of applications. Each unit includes 2 barbed fittings of 8/12 mm diameter each.</p>	 <p><b>Temperature. Under control.</b> External Pt100 sensor connection for precise measurement and control directly in the external application.</p>
 <p><b>Process stability.</b> Early warning - visual and acoustic - of critical states increases process stability.</p>	 <p><b>ATC3. Calibration.</b> 'Absolute Temperature Calibration' for compensating a physically caused temperature difference, 3-point calibration.</p>
 <p><b>Condensation protection.</b> Superb design solution. Integrated ventilation directs air over the bath lid and minimizes condensation.</p>	 <p><b>Wide range.</b> Refrigerated and heating circulator in various combinations, circulator in various sizes. Maximum flexibility through a large selection of accessories.</p>
 <p><b>Analog I/O.</b> Analog interfaces for integration into process control systems (optional).</p>	 <p><b>Process. Under control.</b> Full regulation of the dynamics control, access to all important control parameters for individual process optimization.</p>
 <p><b>Stable. Mobile.</b> Rubber feet keep JULABO Circulators standing firm. Larger and more powerful units also have integrated rollers for easy handling.</p>	 <p><b>Space saving. Free up space.</b> 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.</p>



**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.