Julabo

F81-HL Ultra-Low Refrigerated / Heating Circulator

The Ultra-Low Refrigerated Circulators of the HighTech Series with HL or SL circulator feature powerful pressure and suction pumps. The instruments provide the entire variety of functions of the professional HighTech Series of circulators.

Product features

- VFD COMFORT DISPLAY
- LCD DIALOG DISPLAY backlit for convenient interactive operation
- Keypad for setpoints, warning/safety values and menu functions
- ICC (Intelligent Cascade Control), self-optimizing temperature control
- TCF Temperature Control Features to optimize the control behavior
- ATC3 3-Point-Calibration
- Pt100 External sensor connection for measurement and control
- SMART PUMP, electronically adjustable pump stages
- Unique early warning system for low liquid level
- Adjustable high temperature cut-out, visible via display
- RS232/RS485 interface for online communication
- Integrated programmer for 6 x 60 program steps
- Connections for solenoid valve and HSP booster pump
- Proportional cooling control
- Active Cooling Control

Performance values

230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F)					
Heating capacity kW	1.3				
Viscosity max. cSt	70				
Pump capacity flow rate I/min	22 26				
Pump capacity flow pressure bar	0.4 0.7				
Maximum suction bar	0.2 0.4				
Power consumption A	16				





Order No.	r No. 9312681.33							
Cooling capacity (Ethanol)								
°C	20	0	-20	-40	-60	-80		
kW ¹	0.45	0.38	0.36	0.32	0.27	0.07		
Refrigerant stage 1 Refrigerant stage 2								
Refrigerant	R4	R404A		jerant	R23			
Filling weight g	50	00	Filling	ı weight g	120			
Global Warming R404A	Potential for 39	022	Globa R23	I Warming Potential	for 14800			
Carbon dioxide e	equivalent t 1.	961	Carbo	on dioxide equivalent	t 1.776			

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			Cooling		
Order No.	9 312 681		Cooling of compressor	2-stage Air	
Available voltage versions	s:				
	230V/50-60Hz (Schuko Plug - CEE 7/4 Plug Type F) (R404A)				
Bath			Other		
Bath cover		integrated	Classification	Classification III (FL)	
Usable bath opening cm ((W x L / D)	13 x 15 / 16	IP Code	IP 21	
Electronics			Dimensions and volumes		
Interfaces		Profibus optional	Weight kg	88	
External pt100 sensor connection		integrated	Dimensions cm ($W \times L \times H$)	50 x 58 x 89	
Integrated programmer		6x60 steps	Filling volume l	5 6.5	
Temperature control		ICC	Pump connections	M16x1 male	
Absolute temperature cal	ibration	3 Point Calibration			
Temperature display		VFD			
Temperature setting		Keypad			
Temperature values			Included in delivery		
Setting the resolution of t display °C	he temperature	0.01	2 Barbed fittings for tubing 8 and 12 mm ID. (Pump connections M16x1 male)		
Working temperature rang	ge °C	-81 +100			
Temperature stability °C		±0.02			
Ambient temperature °C		+5 +40			
Setting the resolution of t	he temperature	0.01			

display °C

All Benefits



For flammable bath fluid Classification III (FL) according to DIN 12876-1

process optimization.

Process. Under control.



Early warning system for high/low temperature limits

Full regulation of the dynamics control, access to all important control parameters for individual

Maximum safety for applications, optical and audible alarm, convertible to automated cut-off function



Connection of additional equipment Stakei connections for solenoid valve, HSP booster pump and HST booster heater



Control of the external application External Pt100 sensor connection for precise measurement and control directly in the external application



100% Checked.

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



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



Satisfied customers.

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



Intelligent temperature control.

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



ATC3. Calibration. 'Absolute Temperature Calibration' for compensating a physically caused temperature difference, 3-point calibration.

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100 % Cooling capacity 'Active Cooling Control' for cooling available throughout the entire working temperature range, fast cool-down even at higher temperatures



Energy saving cooling

Proportional cooling control for automatic adjustment of cooling power or temporary switchoff of compressor as needed to save up to 90 % energy in comparison to unregulated cooling machines



Clever pump system Reliable and consistent pump capacity, electronically adjustable pump stages



Condensation and ice protection A heated cover plate prevents condensation or ice build-up in the bath

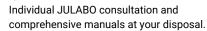


Development consistently applied environmentally friendly materials and technologies.



Ouick start.

Green technology.



Services 24/7.



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



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