Julabo

FPW91-SL 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

400V/3PNPE/50Hz (Plug 63A CEE)	
Heating capacity kW	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	32





Order No.		9352793.07					
Cooling capacity (Ethanol)							
°C	20	0	-20	-40	-60	-80	
kW ¹	4.5	4.1	3.7	3.1	2	0.75	
Refrigerant stage 1 Refrigerant stage 2							
Refrigerant	R40	4A	Refrige	rant	R23		
Filling weight g	900		Filling	weight g	1000		
Global Warming Pot R404A	tential for 392	2	Global R23	Warming Potential fo	or 14800		
Carbon dioxide equi	ivalent t 3.52	298	Carbon	dioxide equivalent t	14.8		

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 ve	ersions		Cooling		
Order No.	9 352 793		Cooling of compressor	2-stage Water	
Available voltage versions:			Cooling water pressure max. bar 6		
9352793.16	6 230V/3PPE/60Hz (Without Plug) (R404A)		Recommended cooling water properties		
9352793.07 400V/3PNPE/50Hz (Plug 63A Cl (R404A)		z (Plug 63A CEE)	Cooling water temperature range °C 20		
			Cooling water difference pressure bar	3.5	
			Cooling water consumption l/min	7.5	
Bath			Other		
Bath cover		integrated	Classification	Classification III (FL)	
Usable bath opening cm	(W x L / D)	28 x 23 / 20	IP Code	IP 21	
Electronics			Dimensions and volumes		
Interfaces		Profibus optional	Weight kg	303	
External pt100 sensor connection		integrated	Cooling Water Connection in	G¾	
Integrated programmer		6x60 steps	Dimensions cm ($W \times L \times H$)	85 x 76 x 116	
Temperature control		ICC	Filling volume l	22	
Absolute temperature calibration		3 Point Calibration	Pump connections	M16x1 male	
Temperature display		VFD			
Temperature setting		Keypad			
Temperature values			Included in delivery		
Setting the resolution of display °C	the temperature	0.01	2 Barbed fittings for tubing 8 and 12 mm ID. (Pump connections M16x1 male)		
Working temperature rar	nge °C	-91 +100	2 each barbed fittings for tubing 8 and 12 mm inner dia. (pump		
Temperature stability °C		±0.2	connections M16x1 female).		
Ambient temperature °C		+5 +40			
Setting the resolution of display °C	the temperature	0.01			

All Benefits





For flammable bath fluid

Process. Under control. Full regulation of the dynamics control, access to all important control parameters for individual process optimization.

Classification III (FL) according to DIN 12876-1



Early warning system for high/low temperature limits

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

Pt100

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.



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

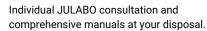


Development consistently applied environmentally friendly materials and technologies.



Quick 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.