

## FP51-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
- ICC (Intelligent Cascade Control), self-optimizing temperature control
- TCF Temperature Control Features to optimize the control behavior
- ATC3 3-Point-Calibration
- SMART PUMP, electronically adjustable pump stages
- 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



### Performance values

400V/3PNPE/50Hz (Plug 16A CEE)	
Heating capacity kW	3
Viscosity max. cST	70
Pump capacity flow rate l/min	22 ... 26
Pump capacity flow pressure bar	0.4 ... 0.7
Maximum suction bar	0.2 ... 0.4
Power A	16

## Refrigerant variants

Order No. 9352751.07

## Cooling capacity (Ethanol)

°C	20	0	-20	-40
kW	2	1.5	1	0.26

## Refrigerant stage 1

Refrigerant R507

Filling volume g 1030

Global Warming Potential for R507 3985

Carbon dioxide equivalent t 4.105

Order No. 9352751.S1.07

## Refrigerant stage 1

Refrigerant R449A

Filling volume g 1030

Global Warming Potential for R449A 1397

Carbon dioxide equivalent t 1.439

## Technical data

## Available voltage versions

Order No.	9 352 751
Available voltage versions:	
9352751.06	230V/3PPE/50Hz (Without Plug) (R507)
9352751.07	400V/3PNPE/50Hz (Plug 16A CEE) (R507)
9352751.S1.07	400V/3PNPE/50Hz (Plug 16A CEE) (R449A)
9352751.16	208V/3PPE/60Hz (Without Plug) (R507)

## Bath

Bath cover	integrated
Usable bath opening cm (W x L / D)	18 x 12 / 20

## Cooling

Cooling of compressor 1-stage Air

## Other

Sound pressure level dbA	63
Classification	Classification III (FL)
IP Code	IP 21

## Electronics

Digital interface	Profibus optional
External pt100 sensor connection	integrated
Integrated programmer	6x60 steps
Temperature control	ICC

## Dimensions and volumes

Weight kg	90
Dimensions cm (W x L x H)	46 x 55 x 89
Filling volume l	7.5 ... 12
Pump connections	M16x1 male

Absolute temperature calibration	3 Point Calibration
Temperature display	VFD
Temperature setting	Keypad

### Temperature values

Setting the resolution of the temperature display °C	0.01
Working temperature range °C	-51 ... +200
Temperature stability °C	±0.05
Ambient temperature °C	+5 ... +40
Temperature display resolution °C	0.01

## All Benefits



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



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



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



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



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



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



**Services 24/7.**  
Around the clock availability. You can find suitable accessories, data sheets, manuals, case studies, and more at [www.julabo.com](http://www.julabo.com).



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



**Early warning system for high/low temperature limits**  
Maximum safety for applications, optical and audible alarm, convertible to automated cut-off function



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



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



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



**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 switch-off of compressor as needed to save up to 90 % energy in comparison to unregulated cooling

machines



**Condensation and ice protection**

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



**Control of the external application**

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



**ATC3. Calibration.**

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