

## FPW52-SL Ultra-Low Refrigerated / Heating Circulator

Ultra-Low Refrigerated Circulators with SL circulator impress with their high heating, cooling and pump capacities for external temperature control applications.

### 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 32A 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 consumption A	20

Order No. 9352753N150.07

Cooling capacity (Ethanol)

°C	20	0	-20	-40	-50
kW <sup>1</sup>	3	2.8	1.6	0.65	0.26

Refrigerant stage 1

Refrigerant R452A

Filling weight g 850

Global Warming Potential for R452A 2140

Carbon dioxide equivalent t 1.819

<sup>1</sup> 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

<b>Available voltage versions</b>		<b>Cooling</b>	
Order No.	9 352 753N150	Cooling of compressor	1-stage Water
<b>Available voltage versions:</b>		Cooling water pressure max. bar	6
9352753N150.07	400V/3PNPE/50Hz (Plug 32A CEE) (R452A)	<b>Recommended cooling water properties</b>	
9352753N150.16	208V/3PPE/60Hz (Without Plug) (R452A)	Cooling water temperature range °C	20
		Cooling water difference pressure bar	3.5
		Cooling water consumption l/min	5
<b>Bath</b>		<b>Other</b>	
Bath cover	integrated	Classification	Classification III (FL)
		IP Code	IP 21
<b>Electronics</b>		<b>Dimensions and volumes</b>	
Interfaces	Profibus optional	Weight kg	153
External pt100 sensor connection	integrated	Cooling Water Connection in	G¾
Integrated programmer	6x60 steps	Dimensions cm (W x L x H)	59 x 76 x 116
Temperature control	ICC	Filling volume l	17 ... 24
Absolute temperature calibration	3 Point Calibration	Pump connections	M16x1 male
Temperature display	VFD		
Temperature setting	Keypad		
<b>Temperature values</b>		<b>Included in delivery</b>	
Setting the resolution of the temperature display °C	0.01	2 Barbed fittings for tubing 8 and 12 mm ID. (Pump connections M16x1 male)	
Working temperature range °C	-55 ... +150		
Temperature stability °C	±0.05		
Ambient temperature °C	+5 ... +40		
Setting the resolution of the temperature display °C	0.01		

## All Benefits



**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.



**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



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



**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



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



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



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



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



**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.



**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).



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