FP89-ME Ultra-low refrigerated / heating circulator

The ultra-low refrigerated circulators of the TopTech series are equipped with a dual-stage cascade refrigeration system for continuous operation of internal and external temperature applications.

Models with ME circulator

- Heated bath cover plate to prevent condensation or ice build-up
- Pressure pump up to 0.45 bar, electronically adjustable in steps
- ACC Active Cooling Control across the entire temperature range
- Compact design Note: FP models feature an energy-saving proportional cooling control.

Product features

- PID3 cascade temperature control
- RS232 interface for online communication
- Integrated programmer for 10 program steps
- VFD COMFORT DISPLAY
- Keypad for setpoints, warning/safety values and menu functions
- ATC3 3-Point-Calibration
- Pt100 External sensor connection for measurement and control
- SMART PUMP, electronically adjustable pump stages
- Adjustable high temperature cut-out, visible via display
- Active Cooling Control
- Unique early warning system for low liquid level

Performance values

230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F)	
Heating capacity kW	1.2
Viscosity max. cSt	50
Pump capacity flow rate l/min	11 ... 16
Pump capacity flow pressure bar	0.23 ... 0.45
Power consumption A	16

Order No.			9162689.03			
Cooling capacity (Ethanol)						
°C	20	0	-20	-40	-60	-80
kW [1]	1	0.92	0.88	0.75	0.58	0.1

Refrigerant stage 1		Refrigerant stage 2	
Refrigerant	R404A	Refrigerant	R23
Filling weight g	500	Filling weight g	200
Global Warming Potential for R404A	3922	Global Warming Potential for R23	14800
Carbon dioxide equivalent t	1.961	Carbon dioxide equivalent t	2.96

[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

Order No.	9 162 689
Available voltage versions:	
9162689.03	230V/50Hz (Schuko Plug - CEE 7/4 Plug Type F) (R404A)
9162689.13	230V/60Hz (Nema N6-20 Plug) (R404A)

Bath

Bath tank	Stainless steel
Bath cover	integrated
Usable bath opening cm (W x L / D)	13 x 15 / 16

Electronics

Interfaces	Alarm output, RS232
External pt100 sensor connection	integrated
Integrated programmer	1x10 steps
Temperature control	PID3
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	-90 ... +100
Temperature stability °C	±0.02
Ambient temperature °C	+5 ... +40
Setting the resolution of the temperature display °C	0.01

Cooling

Cooling of compressor	2-stage Air

Other

Classification	Classification III (FL)
IP Code	IP 21
Pump type	Immersion Pump

Dimensions and volumes

Weight kg	137
Barbed fittings inner diameter mm	8/12 mm
Dimensions cm (W × L × H)	55 x 60 x 90
Filling volume l	5.5 ... 8
Pump connections	M16x1 male

Included in delivery

2 Barbed fittings for tubing 8 and 12 mm ID. (Pump connections M16x1 male)

All Benefits

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

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

For higher demands
PID Temperature control with drift compensation and adjustable parameters, improved temperature stability for external applications, temperature stability ±0.01 °C internal, <±0.1 °C external.

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

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.