

## Ultra-Low Refrigerated Circulators



F70-ME



F81-ME

### Applications

Freezing point determination, calibration at low temperatures, petroleum testing, ultra-low temperature control for cell cultivation

## TopTech Series

for working temperatures from -90 °C to +100 °C  
with bath opening for internal/external applications

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.

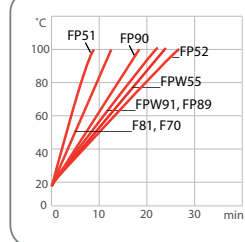
### Models with ME circulator

- 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.

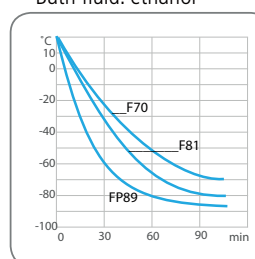
### Heat-up time

Bath fluid: thermal



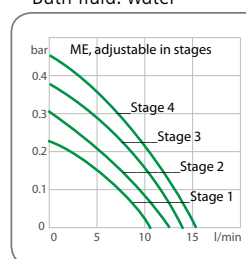
### Cool-down time

Bath fluid: ethanol



### Pump capacity

Bath fluid: water



Order No.	Model	Working temperature range °C	Temp. stab. °C	Heat. cap. kW	Cooling capacity kW (Bath fluid: ethanol)						Pump capacity		Fill. vol. liters	Dimensions W x L x H cm
					+20	0	-20	-40	-60	-80 °C	Flow rate / l/min.	Pressure bar		
9 162 670	F70-ME	-70 ... +100	±0.02	1.3	0.34	0.22	0.17	0.13	0.07	--	11-16	0.23-0.45	4.5	42 x 54 x 71
9 162 681	F81-ME	-81 ... +100	±0.02	1.3	0.45	0.38	0.36	0.32	0.27	0.07	11-16	0.23-0.45	6.5	50 x 58 x 88
9 162 689	FP89-ME	-90 ... +100	±0.02	1.3	1.0	0.92	0.88	0.75	0.58	0.20	11-16	0.23-0.45	8	55 x 60 x 90

Included in delivery: 2 barbed fittings each for tubing 8 mm and 12 mm ID (pump connections M16x1 male)