CF31 Cryo-Compact Circulator

The top class for demanding applications of all types.

Cryo-Compact Circulator for internal and external temperature applications

The new CF series offers compact refrigerated/heating circulators. With small overall dimensions the units can even be placed on a very small surface or within a complex installation. All models offer a heating capacity of 2 kW and classification 3 according to DIN12876-1. The maximum ambient temperature of +40°C as well as a ventilation air cooling allow installing the units very closely side by side with other units or directly under a fume hood. Furthermore all the models feature pump connections for external temperature applications and a bath opening for temperature control of small objects directly in the circulator bath. Wetted parts are made of high quality stainless steel or plastic. The instruments provide a reliable Microprocessor electronics with high temperature stability as well as warning and safety functions.

Your advantages

- Ergonomic design and easy operation
- Small overall dimensions for lowest space requirement
- Splash-proof keypad
- Bright VFD display and interactive LCD dialog display
- Highly precise ICC cascade temperature control
- RS232/RS485 interface for PC connection
- Electronically adjustable pump stages
- External Pt100 sensor connection
- Integrated programmer with 6x60 program steps
- Early warning system for low liquid level
- 3-point calibration
- TCF Temperature Control Features
- Adjustable high temperature cut-off
- Classification 3 according to DIN12876-1
- Pump connections for external temperature applications
- Bath opening for temperature control of small objects in the bath
- Front drain

Technical Data

Order No.	9400331
Model series	HighTech
Category	Cryo-Compact Circulators
Working temperature range (°C)	-30 ... +200
Temperature stability (°C)	±0.02
Setting / display resolution	0.01 °C
Integrated programmer	6x60 steps
Temperature Display	VFD, LCD
Heating capacity (kW)	1

Cooling capacity (Medium Ethanol)	°C	20	0	-20
	kW	0.32	0.25	0.15
Pump capacity flow rate (l/min)	22-26			
Pump capacity flow pressure (psi)	5.8-10.2			
Pump capacity flow suction (psi)	2.9-5.8			
Bath opening / bath depth (W x L / D inch)	6.3 x 1.2 / 5.5			
Pump connections	M16x1			
Barbed fittings diameter (inner dia. / mm)	8 / 12			
Filling volume liters	3.5			
External Pt100 sensor connection	integrated			
Digital interface	RS232, RS485 Optional: Profibus			
Ambient temperature	5...40 °C			
Dimensions W x L x H (inch)	9.4 x 18.1 x 15.7			
Weight (LBS)	79			
Classification according to DIN12876-1	Classification III (FL)			
Included with each unit	2 each barbed fittings for tubing 8 and 12 mm inner dia. (pump connections M16x1 female).			
Cooling of compressor	Air			
Power requirement V / Hz / A	115/60/14			
Available voltage versions	230 V / 50 Hz 230 V / 60 Hz 115 V / 60 Hz			

Characteristics

Display

A perfect view
Ample, easy to read VFD Comfort display for simultaneous display of 3 values, warning functions, high temperature cut-off, pump stages (resolution 0.01 °C)

Additional plain text information
Comfortable LCD dialog display for interactive operation with plain text display

Pump stage and liquid level
Backlit indicator for selected pump stages and filling volume on Presto® PLUS, Magnum 91 & Forte HT

Operation

Clearly structured
Comfortable, splash-proof keypad for setpoint adjustment, high/low temperatures, timer and shaking frequeny (SW models)

Temperature Control

ICC **For perfect results**
'**I**ntelligent **C**ascade **C**ontrol', automatic & self optimizing adjustment of PID control parameters, temperature stability ±0.005 °C internal, <±0.05 °C external

Full control
TCF '**T**emperature **C**ontrol **F**eatures' for individual optimization, access to all important control parameters, additional settings for band limit, limits, Co-Speedfactor etc.

ATC³ **Highest measuring accuracy**
'**A**bsolute **T**emperature **C**alibration' for manual compensation of a temperature difference, 3-point calibration

Technical Features

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

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

Connection compliant to standard
RS232/RS485 dual-interface for serial data transmission according to EIA-485 industry standard (2-wire bus technology), upgradable with Profibus DP

Optimal program control
For the execution of time and temperature dependant profiles, 6 temperature profiles with 60 steps max., with real time clock

Warning & Safety Functions

Early warning system for low liquid level
Maximum safety for applications, optical and audible alarm, allows user to refill bath fluid before the unit shuts down

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

Enhanced protective functions
Maximum safety, adjustable high temperature cut-off or dry-running protection, additional display of setpoints permits easy and precise adjustments

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