## **CF41 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.

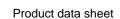


### Your advantages

- · 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

| Technical Data                 |                          |
|--------------------------------|--------------------------|
| Order No.                      | 9400341                  |
| Model series                   | HighTech                 |
| Category                       | Cryo-Compact Circulators |
| Working temperature range (°C) | -40 <b>+200</b>          |
| 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<br>kW 0.47 0.4 0.28   |
|--|---|
| Pump capacity flow rate (I/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) | 7.5 x 1.2 / 7.5   |
| Pump connections                           | M16x1   |
| Barbed fittings diameter (inner dia. / mm) | 8 / 12  |
| Filling volume liters                      | 5.5   |
| External Pt100 sensor connection           | integrated  |
| Digital interface                          | RS232, RS485<br>Optional: Profibus  |
| Ambient temperature                        | 540 °C  |
| Dimensions W x L x H (inch)                | 11 x 18.1 x 18.1  |
| Weight (LBS)                               | 92  |
| 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               | 115/60/16   |
| Available voltage versions                 | 230 V / 50 Hz<br>230 V / 60 Hz<br>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**



#### For perfect results

'Intelligent Cascade Control', automatic & self optimizing adjustment of PID control parameters, temperature stability ±0.005 °C internal, <±0.05 °C external



#### Full control

'Temperature Control Features' for individual optimization, access to all important control parameters, additional settings for band limit, limits, Co-Speedfactor etc.



### ATC<sup>3</sup> Highest measuring accuracy

'Absolute Temperature Calibration' for manual compensation of a temperature difference, 3-point calibration

#### **Technical Features**



# SMART Clever pump system

Reliable and consistent pump capacity, electronically adjustable pump stages





#### Pt 100 Control from the external application

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

Product data sheet



# RS232 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