

## **PCC** **PROCESS CYCLING CHILLERS**

### **PCC Models in 1, 2, 3 Ton Capacities**

Process Cycling Chillers (PCC) are engineered to provide efficiency and reliability in the most demanding closed-loop chilling applications. All PCC models meet the process fluid requirements for temperature stability and steady circulation volume. They provide the advantages of energy-saving performance, corrosion resistance, and rugged construction for true portability and versatility. And, they have been designed for convenient service connection, setup, and performance monitoring.

#### **Energy-Saving Operation**

All models incorporate a cycling refrigeration circuit that provides energy savings and long service life. Cycling operation allows the refrigeration system to run optimally, to store cooled process fluid in a thermal storage module, or be turned OFF completely. When the stored cold energy is consumed, the refrigeration system automatically cycles ON to replenish the supply. This cycling enables energy consumption that meets actual process chilling demand.

#### **The CFX® Advantage**

All PCC models include patented CFX® heat exchangers that have a high heat transfer coefficient. The all-welded stainless steel **C**orrugated, **F**olded **eX**changers (CFX) have a large, open flow area and a self-cleaning action that contribute to extremely low fouling potential.

With Stainless Steel



#### **All-Digital Control**

The Z-Trol™ Digital Controller provides automatic operation as well as performance monitoring and adjustment capability on 2 and 3 ton models. A touchpad with LCD display provide a highly accurate indication of current settings and conditions.



### **Reliability In Process Chilling**

- **Corrosion Resistant Heat Exchangers**  
*Corrosion Resistance and Durability*
- **Oversized Circulation Pump**  
*Steady Volume and Pressure with Long Service Life*
- **Cycling Operation**  
*Energy Savings and Long Service Life*
- **Bypass System**  
*Protects Pump In Dead Head Situation*
- **Convenient Service Connection**  
*Facilitates Use With Portable Equipment*
- **75 psig Maximum Operating Pressure**  
*Safety and Broad Applicability*



## PROCESS CYCLING CHILLERS

### Technical Specifications

MODEL	PCC010	PCC020	PCC030
Cooling Capacity (Tons)	1	2	3
Rated Capacity (BTU/hr)	12,000	24,827	39,722
Circulation Pump Size (HP)	.5	.5	1
Tank Capacity (Gallons)	10.5	30	30
Nominal Flow Rate (GPM)	4	5	7.5
Nominal Pressure (PSI)	30	30	45
Process Connection IN & OUT	3/4" FPT	1" FPT	1" FPT
Width* (Inches)	29.75	37.5	37.5
Depth* (Inches)	37.75	44	44
Height* (Inches)	24	46.25	46.25
Ship Weight (Lbs.)	345	716	716
Refrigeration HP	1.5	3.5	5
Refrigerant	R404A	R404A	R404A
Operating kW**	2.9	5.8	7.6
Voltages Available	230-1-60 230-3-60 460-3-60	230-3-60 460-3-60	230-3-60 460-3-60

### Standard Features

- Adjustable Process Temperature Control
- Cycling Refrigeration System
- CFX® Stainless Steel Evaporator
- Stainless Steel Pump (2, 3 Ton)
- Air Cooled Refrigeration Condenser
- Bypass System
- Galvanized Steel Tank (2, 3 Ton)
- Stainless Steel Tank (1 Ton)
- NEMA 1 Electric
- UL/ULC Construction
- Z-Trol Controller (2, 3 Ton)
- Analog Gauges - Process Fluid Pressure (1, 2, 3 Ton)  
- Process Fluid Temperature (1 Ton)  
- Refrigeration Suction Pressure (1 Ton)
- Casters (1 Ton)
- Powder Coated Cabinet

### Optional Equipment

- NEMA 4/12 Electric
- Stainless Steel Tank (2, 3 Ton)
- Ambient Air Filter (refrigeration condenser)
- Casters (2, 3 Ton)
- Backup Circulation Pump (2, 3 Ton)

### Selection Procedure

Use **CORRECTION FACTORS** that correspond to the actual load requirements. Multiply the ACTUAL LOAD by C1, C2, and C3 to determine the chiller capacity required. Select the PCC model from the chart above that meets or exceeds the calculated BTU / HR capacity requirement.

Ambient Effects	
Ambient Temp °F	CORRECTION FACTOR - C1
85	0.87
90	0.93
95	1.00
100	1.08
105	1.18

Chilled Fluid Effects	
Fluid Temp °F	CORRECTION FACTOR - C2
32	1.39
40	1.13
45	1.00
50	0.89
55	0.79
60	0.71

Glycol % Effects	
% Glycol	CORRECTION FACTOR - C3
0	1.00
10	1.01
20	1.02
30	1.03
40	1.04
50	1.05

### Sizing Example:

Flow:	6 GPM
Fluid Inlet Temperature	49.5°F
Fluid Outlet Temperature	40°F
Fluid Temperature Δ	9.5°F
Ambient Temperature	90°F
Process Fluid	20% Glycol

Calculate BTU / HR with known factors:

$$\text{GPM} * 500 * \Delta T * C1 * C2 * C3$$

$$6 * 500 * 9.5 * .93 * 1.13 * 1.02 = 30,549 \text{ BTU / HR}$$

**Select Process Cycling Chiller Model PCC 030 to meet the load demand for this example.**

\* Overall dimension

\*\* Average kilowatts per hour of operation at full rated capacity

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