You have a Chiller, Now What?

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Koolant Koolers Brand Chillers

Agenda

This presentation is developed to be a very brief and generic introduction to anyone who receives a new chiller and would like a jumpstart to what to expect.

This presentation may not fit exactly for your heat removal product, but may have valuable usable information.

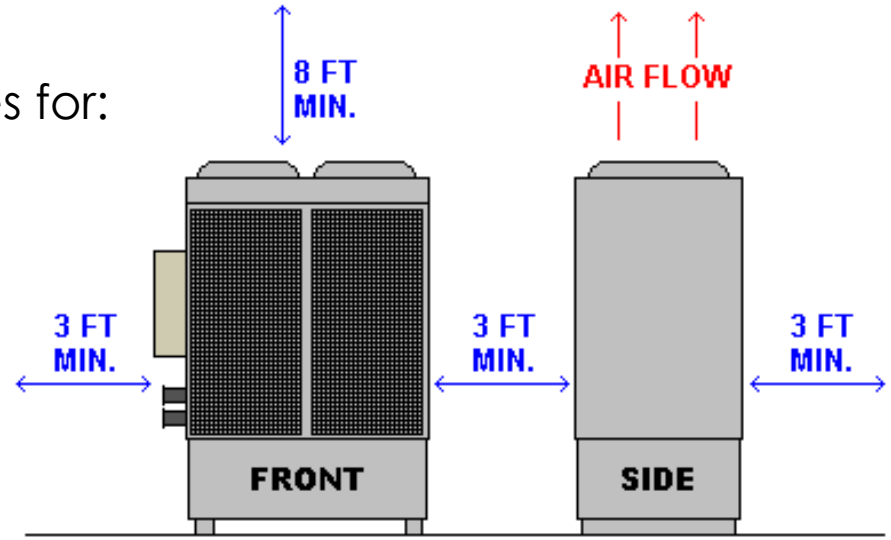
Agenda

- Preparation for Start Up
  - Location
  - Install
  - Suggested Parts/Tools for Commissioning
  - Preparation
- Start Up Steps
- Standard Maintenance
- Tips
- Questions, Comments?

Preparation for Start Up

Location:

- Locate on **a flat, level, hard surface** and **close** to the process.
- Avoid **corrosive fumes**, **excessive moisture**, **excessive dust**, or **high room temperatures**.
- Ensure there is proper clearances for:
  - Electrical **enclosure** access
  - **Maintenance** access
  - Proper **air circulation**



Preparation for Start Up

Install:

- **Secure feet**, or lock caster **wheels**.
- Chiller is anchored and supported according to **specifications** and **local codes**.
- Chiller is **fully plumbed** into the process equipment.
- Field **piping sized** and **installed** according to specs.

Preparation for Start Up

Suggested Parts/Tools for Commissioning:

- Air Filter(s)
- Fluid Filter(s)
- Pump Shaft Seal
- Pump O-Ring
- Glycol tester refractometer

Preparation for Start Up

Preparation:

- Perform **cleaning/flushing** of the piping system.
- Inspect all accessible wiring for **tightness and/or damage**.
- Verify incoming voltage matches the nameplate within **±10%.**
- Check **phase rotation**:
    - **Pump** - Momentarily press in one contactor coil and watch rotation.
    - **No Pump** – Use a phase checking devise.
- Open all **isolation valves** so the process fluid is able to flow without restriction.

Preparation for Start Up

Preparation (continued)**:**

•Ensure that **crankcase heater** has been on for at least 8 hours prior to startup.

Start Up Steps

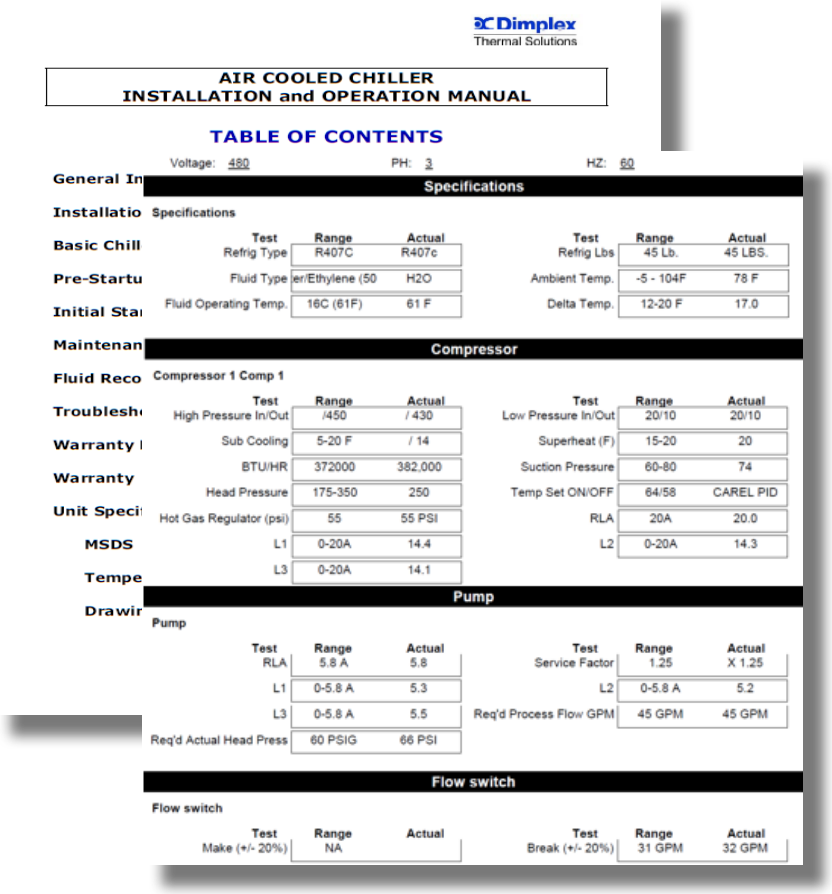
Chiller Startup:

- Power Up - Turn the selector switch to either **ON or LOCAL**.
- Inspect entire system for **fluid leaks** and **good flow**.
- Re-check system **fluid level** before continuing.
- Apply **heat load**.
- While the chiller is under a load, **record the following**:
  - Voltages
  - Pressures
  - Temperatures
  - Amps

Start Up Steps

Chiller Startup (continued)**:**

•Compare to the **Data Pack recordings** provided with the installation and maintenance manual.



Dimplex Thermal Solutions

AIR COOLED CHILLER
INSTALLATION and OPERATION MANUAL

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Voltage: 480 PH: 3 HZ: 60

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Specifications

Specifications

Test	Range	Actual	Test	Range	Actual
Refrig Type	R407C	R407c	Refrig Lbs	45 Lb.	45 LBS.
Fluid Type	er/Ethylene (50	H2O	Ambient Temp.	-5 - 104F	78 F
Fluid Operating Temp.	16C (61F)	61 F	Delta Temp.	12-20 F	17.0

Compressor

Compressor 1 Comp 1

Test	Range	Actual	Test	Range	Actual
High Pressure In/Out	/450	/ 430	Low Pressure In/Out	20/10	20/10
Sub Cooling	5-20 F	/ 14	Superheat (F)	15-20	20
BTU/HR	372000	382,000	Suction Pressure	60-80	74
Head Pressure	175-350	250	Temp Set ON/OFF	64/58	CAREL PID
Hot Gas Regulator (psi)	55	55 PSI	RLA	20A	20.0
L1	0-20A	14.4	L2	0-20A	14.3
L3	0-20A	14.1			

Pump

Pump

Test	Range	Actual	Test	Range	Actual
RLA	5.8 A	5.8	Service Factor	1.25	X 1.25
L1	0-5.8 A	5.3	L2	0-5.8 A	5.2
L3	0-5.8 A	5.5	Req'd Process Flow GPM	45 GPM	45 GPM
Req'd Actual Head Press	60 PSIG	66 PSI			

Flow switch

Flow switch

Test	Range	Actual	Test	Range	Actual
Make (+/- 20%)	NA		Break (+/- 20%)	31 GPM	32 GPM

Standard Maintenance

Maintenance:

Proper maintenance is the key to extending the life of your chiller.

- **Inspect and clean condenser**:
  - Remove buildup of dirt, oil, and other debris
  - Inspect condenser fins – use compressed air >30PSI in opposite direction of air flow
- Clean **air filters**, blow and/or wash out.
- Check **water quality**/glycol mixture.
- Inspect **fluid filters/strainers**.
- Inspect **fluid system** for:
  - Fluid leaks
  - Loose pipe fittings or hoses
  - Plumbing parts for wearing, cracking, or chafing

Standard Maintenance

Maintenance (continued)**:**

- Check **voltage & amp draws**:
  - Readings should be within ±10% of the nameplate
  - Maximum difference of ±2% between each phase
- Inspect **mechanical components**:
  - Look for signs of wear or over-heating, discolored paint/metal could be a sign of a motor under excessive load and over-drawing current
  - Listen for metallic sounds or other excessive noise
  - Fill all components with lubrication fittings
- Check all **wiring**:
  - Make sure Disconnect is OFF
  - Replace damaged to reduce shorting or unintentional grounds

Standard Maintenance

Maintenance (continued)**:**

- Inspect/test **refrigeration system**:
  - Check the inside of the chiller for evidence of refrigerant leaks.
  - Spots of oil inside of the chiller or refrigeration lines covered in oil could indicate a possible leak.
  - Contact DTS for certified refrigeration technician.
- **Pump seals**:
  - NOTE: All pump seals are designed to have some leakage to promote long seal life. A small amount of leakage is considered normal.
  - With water or water/glycol most of the leaking fluid evaporates before ever dripping below the pump. Glycol staining or a drop or two below the pump is considered normal.
  - With oil, expect some evidence of oil - oil cannot evaporate.

Standard Maintenance

Maintenance Intervals:

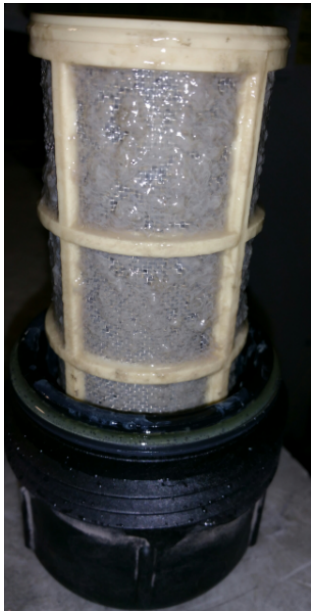
- Intervals vary greatly due to the application and location.

Tips

Damaged Condenser Coils

Fouled Coils

Plugged Condenser Coils



Plugged Filter

Tips

What you need to know about using/replacing:

- **DI Water** –
  - All applications below **5 uS (Micro Siemens**) require high purity plumbing.
- **Oil and Water Soluble** –
  - Keep free of debris and filtered to at least **50 microns**.
- **City and Well Water** –
  - Check the system monthly, buildup of **sediments and leaching** of metals can build up in the system and **lower cooling capacity** as well as **eat through seals**.
  - **Distilled water** is recommended wherever possible.

COMMENTS?

QUESTIONS?

THANK YOU!