

# KKT chillers - Training Series

## Chiller Commissioning Process



# Scheduling



## ❑ Pre Startup checklist

- KKT worked together with GE Healthcare to create a pre-startup checklist
  - Purpose:
    - Ensure site readiness
    - Reduce Delays
    - Eliminate need for return visits
    - Reduce costs
    - Provide contact information
    - Confirm chiller information and site location

## ❑ Scheduling

- This form must be properly completed and returned to KKT chillers via email support@kkt-chillersusa.com. Once received chiller commissioning will be scheduled to be performed within **10 business days** or otherwise mutually agreed.
- Checklist received that need commissioning in **less** that 5 business days will require an additional expedite fee.

## ❑ Commissioning

- Startup to be performed once the magnet has been fully installed

**Pre-Startup Checklist**

Please Complete One Form Per Unit

Facility Name: \_\_\_\_\_

Address: \_\_\_\_\_

KKT Produce (SN): \_\_\_\_\_

KKT Model: \_\_\_\_\_

The checklist below indicates the minimum requirements that must be completed by the chiller installer prior to the scheduled chiller startup. The chiller must be installed considering all applicable safety practices as defined by OSHA. Each item must be verified by the project manager. Please refer to the KKT chillers Installation and Operation manual for further technical specifications.

This form must be completed and returned to KKT chillers via email support@kkt-chillersusa.com no less than 5 business days before the requested startup visit. Otherwise, an additional expedite fee will apply.

**Note:** All Startup visits will be scheduled to be performed during regular office hours 8AM - 5 PM Monday through Friday.

Please place a checkmark in the left column once each item has been completed.	
<input type="checkbox"/>	Chiller install location provides adequate clearance for airflow and accessibility for maintenance as specified in chiller manual.
<input type="checkbox"/>	Chiller has been mounted, anchored and supported per specifications in chiller manual.
<input type="checkbox"/>	Chiller location is not near any other heat sources (i.e.: condenser exhaust, ventilation ducts, heating exhaust, etc.).
<input type="checkbox"/>	Configuration of the fluid piping must adhere to the specifications included in the manual (i.e. pipe sizing and material).
<input type="checkbox"/>	Please indicate size of piping: _____ Number of long radius elbows (one way) _____
<input type="checkbox"/>	Approx. length of pipe run (one way) _____ ft / m Vertical height difference between chiller and process being cooled _____ ft / m
<input type="checkbox"/>	All piping connected to the chiller has been leak tested and flushed clean with water prior to connecting to the chiller.
<input type="checkbox"/>	Adequate Glycol (KKT protect) and water available on site (near chiller) to insure proper glycol concentration (37% for standard installations, maximum of 50% for installations in regions with low ambient temperatures). KKT is responsible for filling the system. <b>Note:</b> Only Distilled, Reverse Osmosis or De-mineralized water should be used.
<input type="checkbox"/>	Incoming power service connection to the chiller matches the power requirements shown on the chiller data plate.
<input type="checkbox"/>	All field wiring connections verified and match prints. All wiring terminations have been checked for loose connections.
<input type="checkbox"/>	Remote display panel (if equipped) mounted, conduit installed and provided cable run. If length exceeds 50m (164'), a long distance remote cable (100m (328')) must be purchased / installed (KKT# M506106). Splicing is not allowed.
<input type="checkbox"/>	Power must be supplied to the chiller crankcase heaters for a minimum of 8 hours prior to arrival of service technician. <b>Note:</b> Power must be supplied to the unit and main chiller disconnect must remain in the ON position.
<input type="checkbox"/>	Chiller visually checked for any signs of shipping damage (i.e.: damaged crating, bent panels, fluid leaks, etc.).
<input type="checkbox"/>	<b>For closed (pressurized) fluid systems only:</b> automatic air-bleeder valves must be installed at highest point of site piping to allow air to escape from the system.

Comments: \_\_\_\_\_

By signing below, you acknowledge that you have personally verified each item on this checklist has been completed in accordance with the installation instructions and technical specifications provided in the KKT chillers Installation and Operation manual. Additionally, you acknowledge that any delays caused due to incomplete or incorrect items are your responsibility. Failure to complete any items on this checklist may result in the need for additional visits and additional charges. Any additional charges incurred as a result of incomplete items are your responsibility.

Name of Site Manager: \_\_\_\_\_ Company Name: \_\_\_\_\_

Signature of Site Manager: \_\_\_\_\_ Phone Number: \_\_\_\_\_

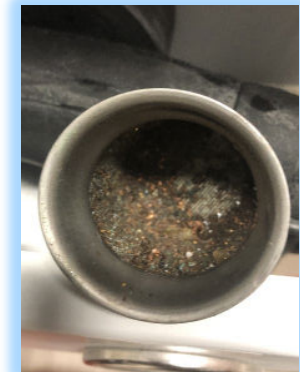
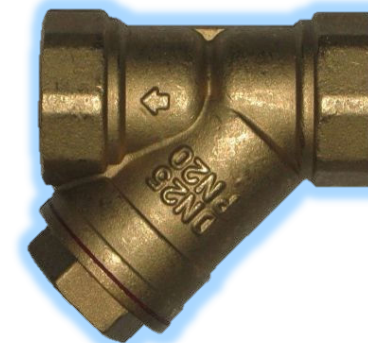
# Site Readiness



## ❑ Challenges

### ○ Site Readiness:

- Clearance issues
  - Serviceability
  - Airflow
- Piping length exceeds specifications
- Incomplete piping
- Site piping not flushed / clogged strainers (filters)
- Site piping not leak checked
- Site piping leaks
- Glycol / Distilled Water
  - Incorrect type
  - Not enough available
  - Incorrect concentration
  - Tap water
- Incomplete wiring
- No power to unit
- Remote display / remote cable not installed
- System filled incorrectly (tap water)



# General Requirements



## ❑ Installation Guidelines

- KKT provides a detailed installation guideline document to assist the installing contractor

## ❑ Documentation portal

- KKT created an online documentation portal to make sure this information is available to GE Healthcare, the installing contractor and our local service partners  
[www.kkt-chillersusa.com/GE](http://www.kkt-chillersusa.com/GE)

## ❑ Chiller Location

- Must not be located near any other heat sources
- Must allow adequate clearance for airflow and serviceability
  - Min. 40" (1000mm) clearance on each side
  - Min. 8' (2500mm) clearance above unit

## ❑ Mounting / anchoring

- Must meet local building code and specifications provided in manual / installation guidelines



# General Requirements



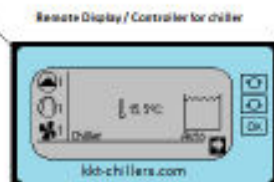
## Outside

Chiller location TBD by customer / contractor



KKT chiller models  
cBoxX 60, 100 +120

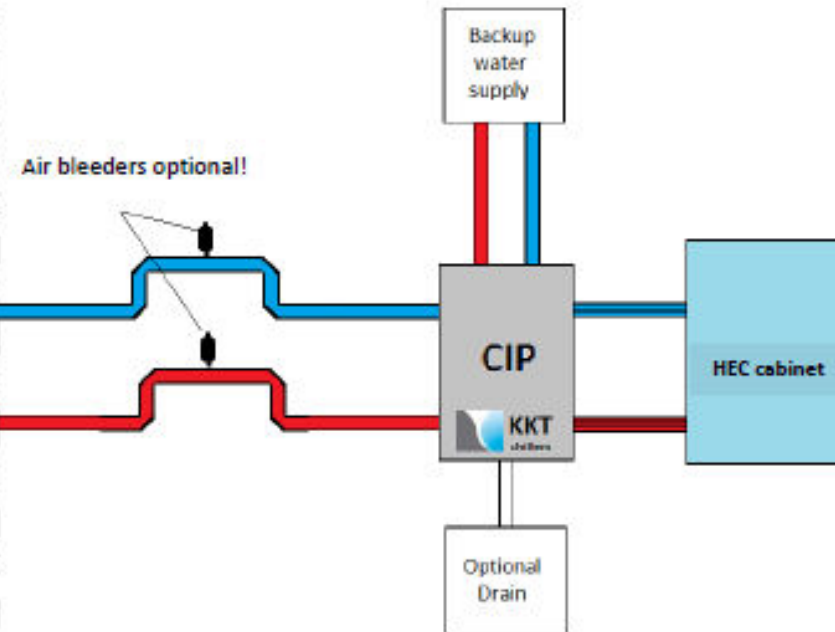
Customer / contractor  
to mount remote  
display to wall in MRI  
control room. Cable  
provided with chiller  
and installed by  
customer / contractor.



## Equipment Room

Refer to installation guidelines and operation manual  
for additional installation guidelines and requirements.

Air bleeders optional!



**Optional** KKT Chiller Interface Panel (CIP) can be used to connect an alternate water source for emergency cooling. If desired, the CIP can be purchased from KKT and delivered with the chiller.





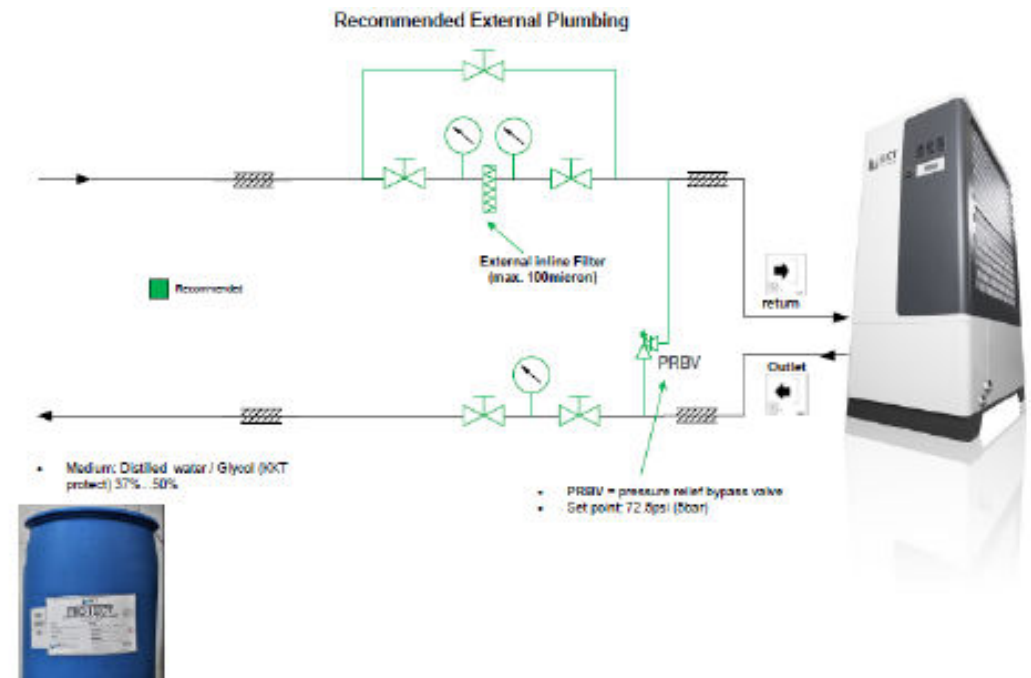
# General Requirements



## ❑ Fluid Piping

- Sized per specifications in manual / installation guidelines
- Piping must be completed and all fluid connections made
- Piping must be flushed with water prior to connecting to chiller.
- Chiller must be isolated and site piping leak checked prior to our arrival

❑ **NOTE:** Please see installation guidelines  
2.4 Recommended external plumbing – **Customer Scope**, pg. 14 for additional information.



# General Requirements

## ❑ Glycol

- Proper type and amount of glycol must be provided at filling point near chiller
  - Automotive antifreeze cannot be used.
  - Tap Water cannot be used
- Adequate volume of glycol / distilled water must be on hand to ensure proper concentration
- KKT recommends using KKT Protect (37% premixed Glycol).
- If 100% concentration is purchased, distilled water must also be provided to dilute to the proper concentration.
- KKT to fill system with glycol when onsite for startup – either by filling directly into the reservoir (**optional: via service pump**)



# General Requirements



## ❑ Electrical Service / Field Wiring

- Incoming power service must be sized according to local code based on chiller nameplate requirements
- All field wiring must be verified, connections must be tight and match prints.
- Wiring to the chiller should be routed through provided knockouts / grommets, no additional holes are necessary.
- Power must be supplied to crankcase heaters for a minimum of 8 hours prior to startup
- Remote display panel must be installed in control room
  - 1" conduit for remote display cable must be installed and cable pulled.
  - If total length exceeds 164' (50M), a long distance remote cable (KKT# M506106) must be installed.
    - **NOTE:** Maximum length allowed is 328' (100M).
    - Splicing is not allowed.
  - KKT will make wiring connections for remote display during startup.





## ❑ Warranty

- KKT's manufacturer's warranty begins upon completion of startup
  - The warranty covers parts and labor on the chiller only
  - The warranty does not cover leaks external to the chiller cabinet or parts damaged due to improper rigging, installation, over pressurization, contamination or poor water quality.
- Return visits due to site readiness or other issues outside of the chiller cabinet are considered billable events and are not covered under our manufacturer's warranty.



# Service



❑ If service is needed during the warranty period, KKT offers 24/7 support:

- KKT Technical Support :
  - 833.KKT.HELP (833.558.4357)
  - [Techsupport@kkt-chillersusa.com](mailto:Techsupport@kkt-chillersusa.com)
- KKT Customer Service \*
  - 877.994.0991
  - [kktservice@kkt-chillersusa.com](mailto:kktservice@kkt-chillersusa.com)



**\*Note** – End Users should contact GE Healthcare to request service.



Thank-you for your partnership and support!