medixX Series
Installation Guidelines

Suitable for the following Siemens MRI Systems, or similar models:

- ⇨ **medixX 50:** Symphony / Harmony Quantum and Aera (XJ gradient)
- ⇨ **medixX 60:** Avanto, Espree, TaTs, Vero, and Aera / Skra (XQ gradient)
- ⇨ **medixX 70:** Biograph mMR

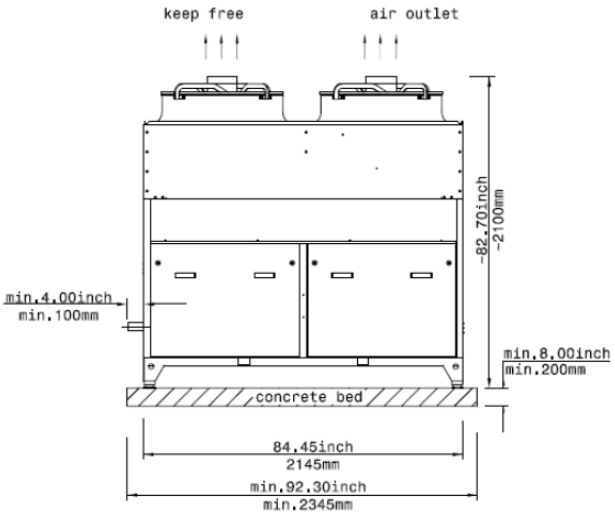
medixX 50
medixX 60
medixX 70

Content for Installation Guidelines

See complete KKT Installation Manual for further details

Concrete Foundation (Pad):

- ⇨ Verify that the installation surface has sufficient load capacity (see chart below)
- ⇨ A concrete foundation or sectional steel construction is recommended.
- ⇨ A concrete foundation needs to be 8 in. (200mm) wider and 8 in. (200mm) longer than the chiller cabinet.
- ⓘ Rooftop curbing to be installed per your local building code specifications.



Dimensions for the concrete bed should be adjusted according to local circumstances.

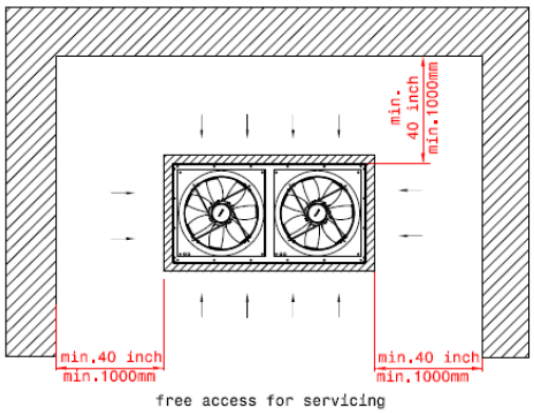
Final Pad Dimensions (minimum):

Approximately 92 in. (2345mm) long by 2866 in. (1300mm) wide and 8in. (20mm) thick.

Chiller weights:

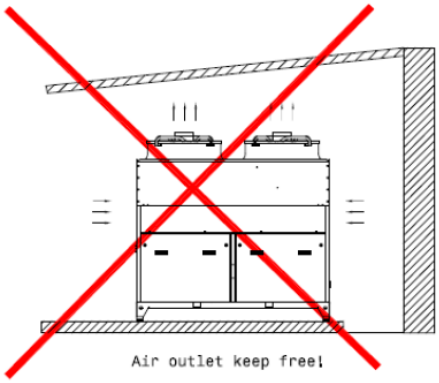
	medixX 50	medixX 60	medixX 70
Net (Dry) Weight	1718 lb. (779 kg)	1779 lb. (807 kg)	1801 lb. (817 kg)
Operating (Wet) Weight	1739 lb. (789 kg)	1803 lb. (818 kg)	1828 lb. (829 kg)
Transport (Crated) Weight	2368 lbs. (1074 kg)	2430 lbs. (1102 kg)	2452 lbs. (1112 kg)

installation example A



free access for servicing

installation example B



Installation Clearance:

- ⓘ Maintain <u>at least</u> 40 in. (1000mm) around all four sides of the chiller for air circulation and servicing.
- ⓘ Under no circumstances should you install a **roof above the chiller**.

Transporting and Rigging

Transport (Crated) Measurements:

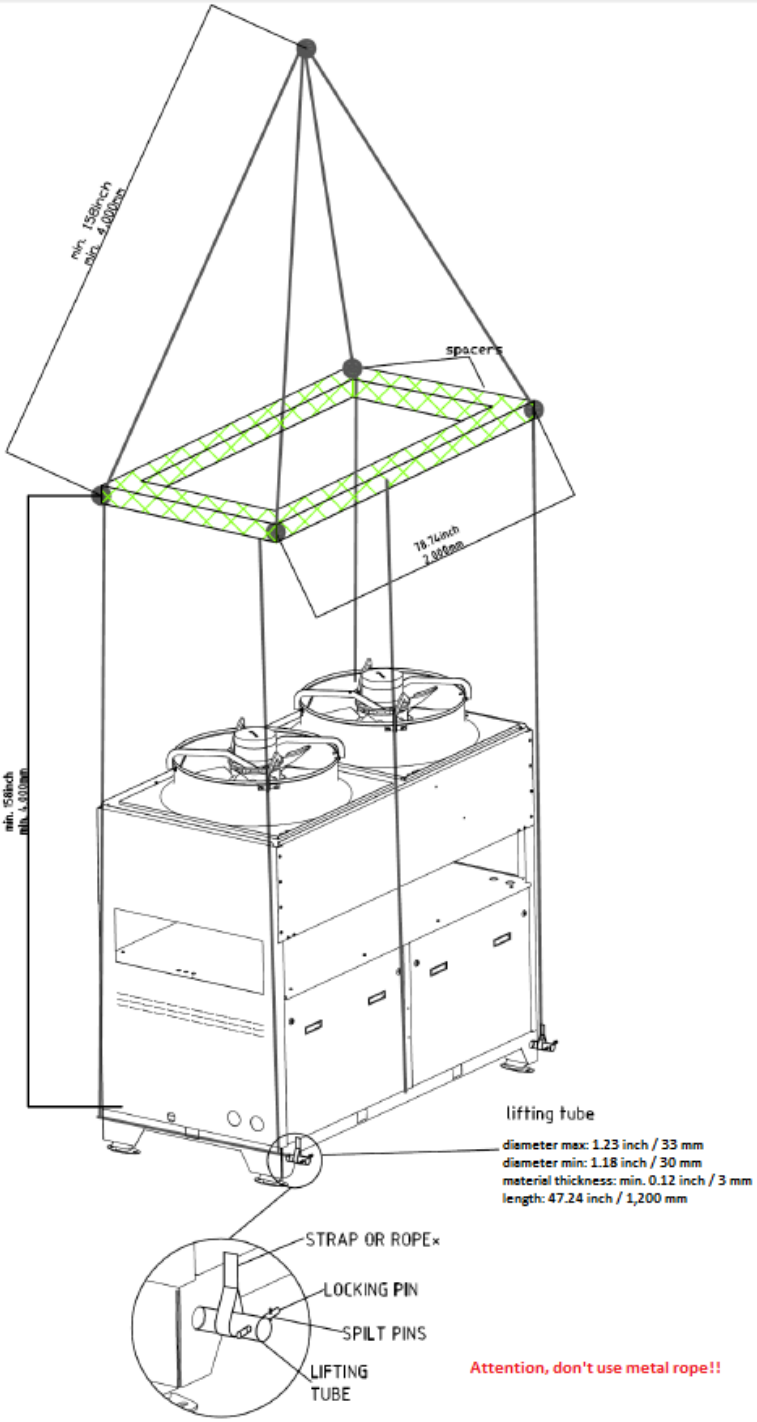
- ⇨ Length: Approx. 91in. (2300mm)
- ⇨ Width: Approx. 51 in. (1300mm)
- ⇨ Height: Approx. 88 in. (2230mm)

ⓘ You will also need to add the height of the transport equipment (pallets, lift truck, transport rollers, etc.)

Crane Transport:

ⓘ If a crane will be used to transport the chiller, please note the following:

1. Lift the chiller **only** from its base. Insert two steel rods through the holes in the base. The rods must be specifically designed for this purpose, and able to support the weight.
2. Secure the rods with locking pins to prevent shifting. Use only straps or rope for lifting from the rods.
3. The straps or ropes must be held in place with a ***spreader bar*** or a frame to keep them from pressing into the side walls, gutters, and condenser body. (Refer to the following graphic).



Piping Installation

Piping Materials Allowed

ⓘ Use only the following materials for the pipes:

1. Copper is recommended
2. Stainless steel

ⓘ *Never* use galvanized piping!

Sealing the European fittings can be completed using any of following sealants:

1. Pipe sealing cord. There are a number of brands available, however KKT recommends "Loctite 55".
2. Anaerobic sealant.
3. Nylon sealant.

As with any sealant, the application instruction must be followed for proper use.

Relation of Pipe Diameter to Distance between Chiller and IFP

KKT Chiller	Max Allowed Elevation above Sea Level	Connections at Chiller (metric)	Max Allowed One Way Piping	Max Long Radius 90 Degree Elbows Allowed in Total Run	Height Difference (between chiller and scanner)	Glycol
MedixX 50	2000M (6560')	2"	<=45M (148') @ 1.5" Pipe; >45M (148') consult KKT	25	Chiller above MRI <30M (99'); chiller below MRI <=25M (82')	35% to 38% ethylene / propylene required
MedixX 60 & 70	2000M (6560')	2"	<=45M (148') @ 2.0" Pipe; >45M (148') consult KKT	25	Chiller above MRI <30M (99'); chiller below MRI <=25M (82')	35% to 38% ethylene / propylene required

⇨ **medixX 50:** Use 1.5" for up to 148 ft. (45M) of straight pipe.

⇨ **medixX 60 & 70:** Use 2.0" for up to 148 ft. (45M) of straight pipe.

ⓘ For distances exceeding 148 ft. (45M) of straight pipe, e-mail the actual pipe length, the difference in height, and the required pipe elbows to support@kkt-chillersusa.com).

ⓘ Maximum allowed elbows in total piping run is 25 pcs. Long radius elbows ***must*** be used.

Dimensions of the connections

- ⇨ The coolant (water/ethylene or propylene glycol) supply and return of the TSN are 1-1/2" Male thread

Glycol

- ⇨ The medixX chillers require a water/ethylene or propylene glycol mixture of 35 to 38 percent glycol to water.
- ⇨ KKT recommends using Distilled, Demineralized or Reverse Osmosis water if available
- ⇨ Allowed Glycol: "KKT chillers – KKT Protect", "Nu-Calgon - Freez-therm", or "The Dow Chemical Company - DOWTHERM SR-1"

Prohibited:

- ⓘ **Do not use** propylene glycol (ECO), automotive anti-freeze, 100% pure ethylene
- ⓘ **DO not mix** different brands of glycols without approval from the factory

Required Volume

Piping Calculations:

- ⇨ Pipe size: 1.50 inches = 1.04 Gal/Ft. (1.2 l/m)
- ⇨ Pipe size: 2.00 inches = 1.74 Gal/Ft. (2.0 l/m)

- ⓘ Volume needed for the chiller is 3.20 gallons (12.11l).
- ⓘ Take into consideration the amount of required glycol within the Healthcare application itself.

Air Vents:

- ⇨ Please ensure that air vents are placed at the highest point of the water loop in supply and return line.

Example of automatic air vent:

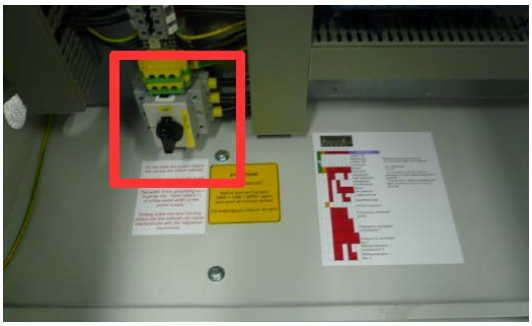
KKT#: 654936
Description: Air vent - EA122A1002
Price: $30.00 USD +S&H

- ⓘ Air vents ***must*** be installed at the ***highest point*** in system piping where large air pockets / bubbles might collect.

Wiring Requirements:

Chiller Power Supply:

- ⇨ *Main Power:* 480V / 3PH / 60HZ
- ⇨ *Max Over Current Protection*:
  - o medixX 50: *63 AMPS*
  - o *medixX 60:* *80 amps*
  - o medixX 70: *100 Amps*



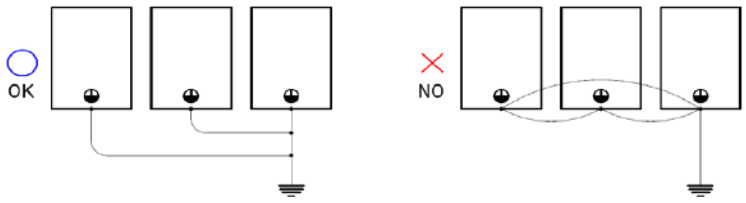
Grounding:

- ⇨ All grounding should be made in accordance with local codes and electrical standards
- ⇨ Wiring for control and power components ***must*** be isolated.
- ⇨ The ground wire ***must*** be sized **AWG 6 (16mm2)** minimum and connected to the ground terminal **(X1)** in the main electrical cabinet of the chiller.
- ⇨ The ground resistance must be less than **5 Ohms**.

ⓘ **Do not share the ground wire with other devices.**

ⓘ **The piping of the chiller (supply and return) must also be grounded.**

ⓘ **When using more than one Inverter, be careful not to loop the ground.**



TSN Installation

Weight:

- ⇨ ***Net (dry) weight TSN:*** 159 lbs. (72kg)
- ⇨ ***Operating (wet) weight:*** 90 lbs. (41kg)
- ⇨ ***Transport (crated) weight:*** 148 lbs. (67kg)

Clearance:

- ⇨ Maintain at least 45 in. (1143mm) from the bottom / top of the TSN.
- ⇨ Maintain at least 2 in. (51mm) from the left and right side of the TSN.
- ⇨ Maintain at least 40 in. (1016mm) from the front of the TSN for servicing.

TSN installation / interface:

1. Attach the TSN to the wall.
2. Connect piping (e.g. copper, etc.) from TSN to the Chiller, and respective hoses from the TSN to the MRI and Emergency Cooling Water Supply.

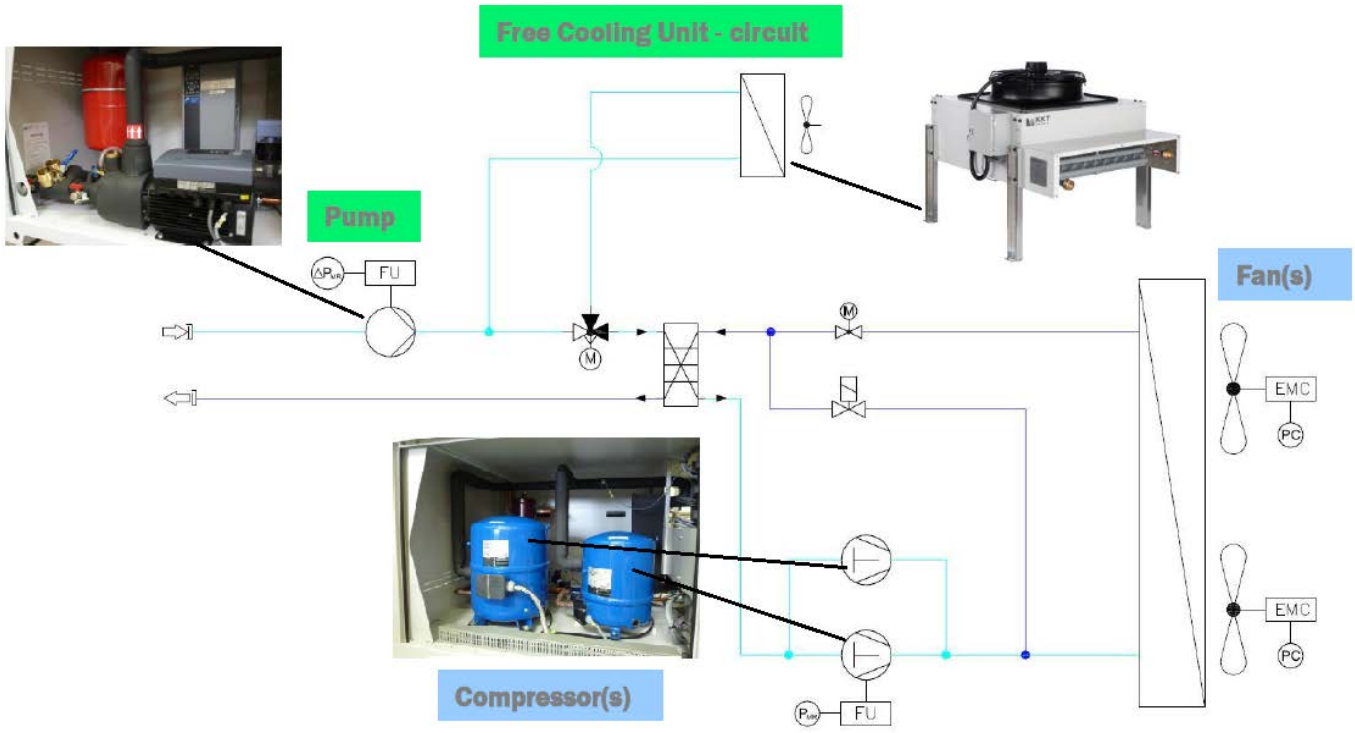
Free Cooling Unit (FCU) – *OPTIONAL*

Weight:

- ***Net (dry) weight FCU:*** 69lbs. (77.6kg)
- ***Operating (wet) weight:*** 187 lbs. (85kg)
- ***Transport (crated) weight:*** 580 lbs. (263 kg)

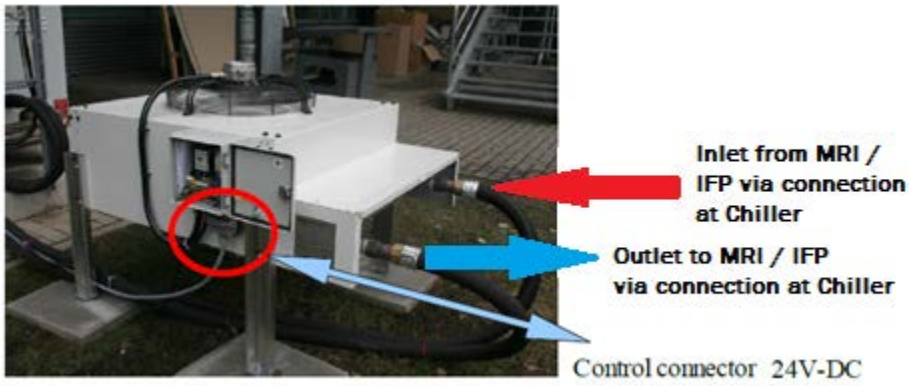
Dimensions:

- 40 in. (1025mm) Length x 34 in. (855 mm) Width x 34 in. (855 mm) Height



Piping Connections:

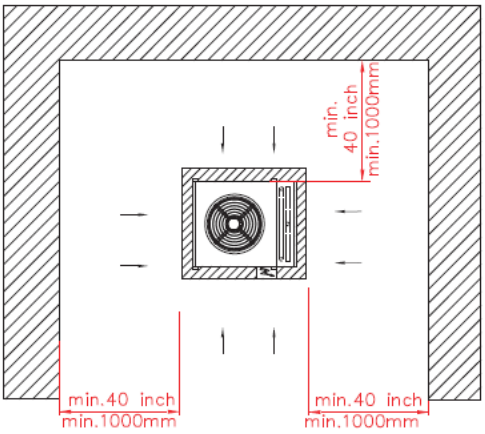
- ⇨ **Inlet / Outlet (Chiller):** 1.25 in. (32 mm)
- ⇨ **Inlet / Outlet (FCU):** 1.25 in. (32 mm)



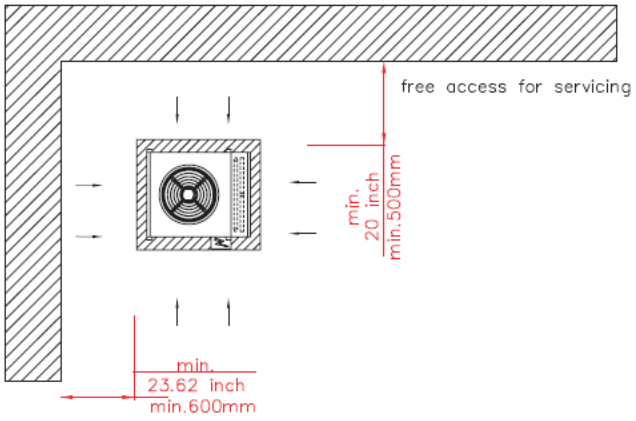
Installation Information

free cooling unit installation

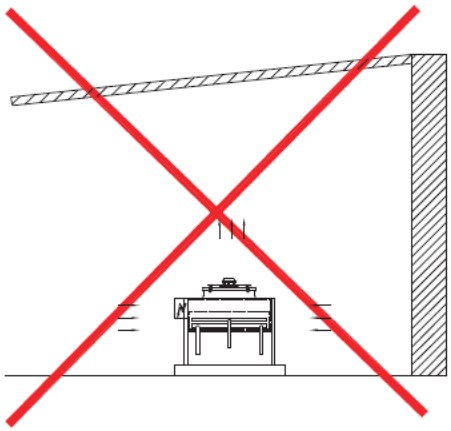
installation example A



installation example B



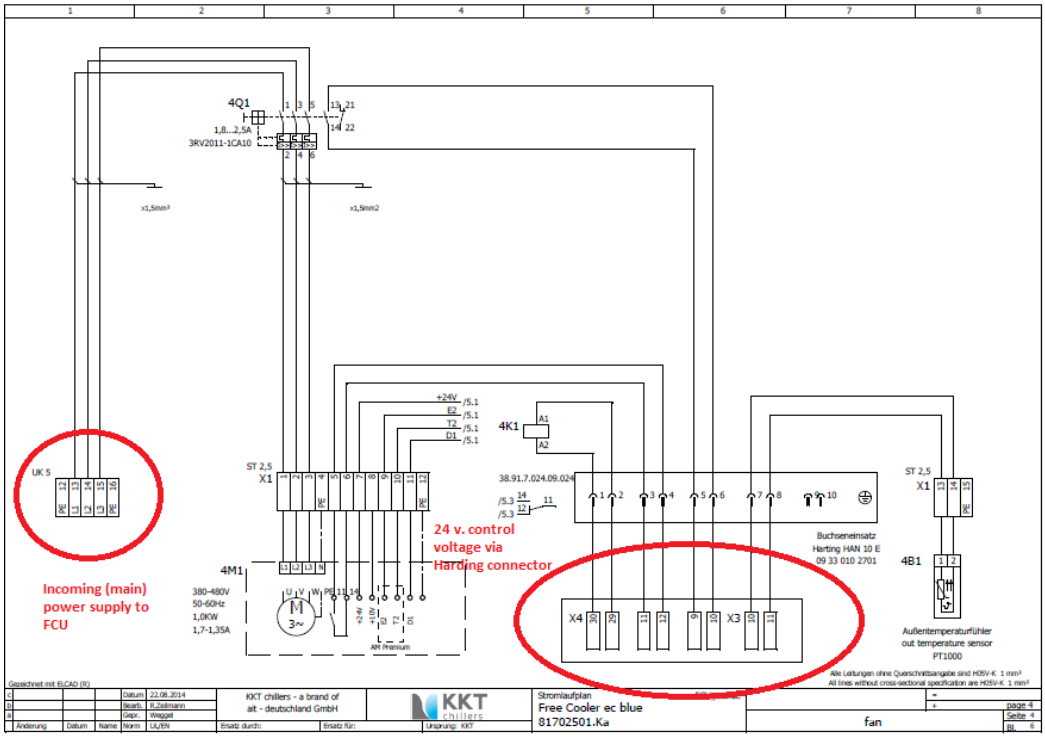
installation example C



Air outlet keep free!

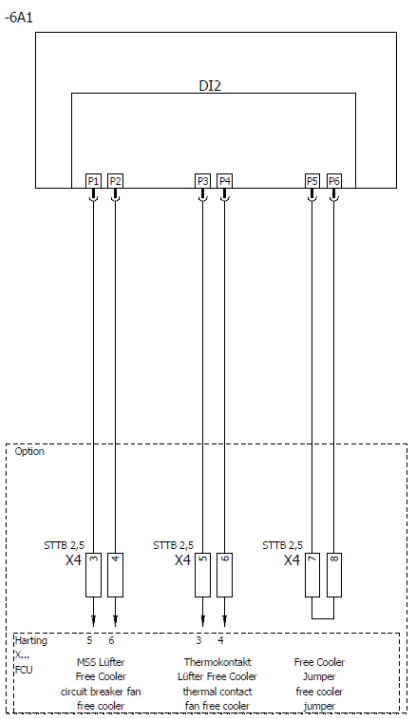
FCU Power Supply:

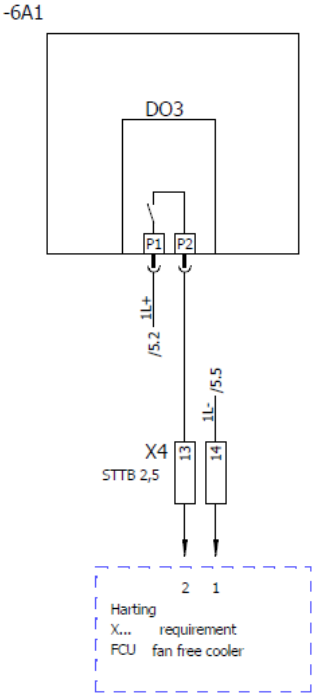
- ***Main Power:*** 480V / 3PH / 60HZ *(Requires own power supply)*
- ***Max Over Current Protection:*** *6 Amps*
- ***Control voltage:*** 24 VDC (Supplied from medixX chiller via Harding connector)

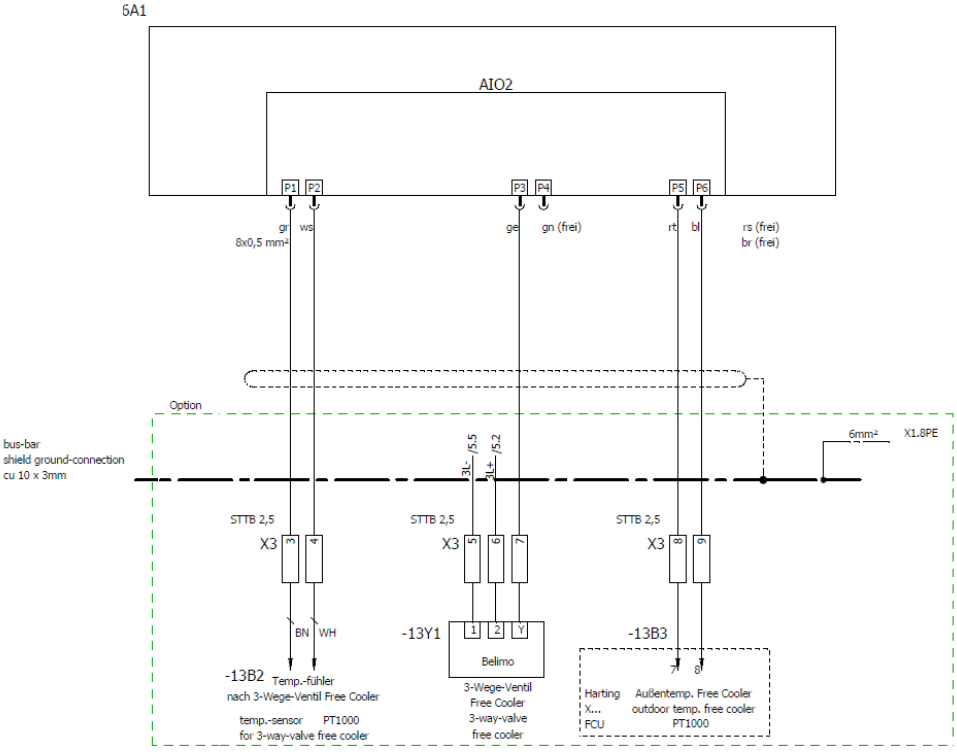


Additional Wiring Connections for the FCU:

⇨ Wiring connections shown below to be performed in the chiller's main electrical cabinet







Pre-Startup requirements:

- Service will be conducted within our regular business hours of Monday thru Friday 8:00 AM – 4:30 PM with a ½ hour lunch. Weekends and after hours startup service may be available at an additional charge.
- One 8 hour business day is allotted for the completion of the service. If delays in the completion of the start-up are due to the site not being adequately prepared, additional charges will be invoiced based on any extra time spent on site. If additional days are necessary, they will be scheduled based upon the availability of the technician. Due to this, the return visit may not occur on consecutive days with the original service date.
- Automatic air bleeders must be installed as detailed in the installation manual.
- Mechanical Contractors who are responsible for the piping and electrical installation must be on site during this start up process. The Piping Contractor must have completed leak testing the site's plumbing lines with pressurized air (no water) prior to the arrival of KKT's technician. The Electrician must have installed the correct wiring connections based upon the chiller requirements and local codes. Safety disconnects must be installed and tested.
- The recommended glycol and water must be at the filling point. Ethylene Glycol (KKT Protect) is available for purchase from KKT chillers at an additional charge.
- A water source must also be available within close proximity (i.e.; garden hose attached to a building water supply) for use in cleaning the condenser coil.
- KKT technician inspects the installation according to manufacturers' guidelines; fills the system with the recommended glycol concentration, completes the required paperwork for warranty and files the document with KKT chillers GmbH.

For questions or technical support, please contact:

- **Technical Support /Parts** 866 - 517 - 6867 orders@kkt-chillersusa.com
- **Service** 877 - 994 - 0991 kktservice@kkt-chillersusa.com

Addendum:

Pre-startup checklist

Pre-Startup Checklist

Medical Chillers

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.

Note: *All Startup visits will be scheduled to be performed during regular office hours Monday - Friday.*

Please place a checkmark in the left column once each item has been completed.	
	Chiller install location provides adequate clearance for airflow and accessibility for maintenance as specified in manual.
	Chiller has been mounted, anchored and supported per specifications in chiller manual.
	Chiller location is not near any other heat sources (i.e.: condenser exhaust, veneration ducts, heating exhaust, etc.).
	Configuration of the fluid piping must adhere to the specifications included in the manual (i.e. pipe sizing and material).
	All piping connected to the chiller has been leak tested and flushed clean with water prior to connecting to the chiller.
	Glycol (KKT protect) and water available on site in correct amount to insure proper glycol concentration (35% for standard installations, maximum of 50% for installations in regions with low ambient temperatures). ***Note:*** *Only Distilled, Reverse Osmosis or Demineralized water should be used.*
	Incoming power service connection to the chiller matches the power requirements shown on the chiller data plate.
	All field wiring connections verified and match prints. All wiring terminations have been checked for loose connections.
	Power must be supplied to the chiller crankcase heaters for a minimum of 8 hours prior to arrival of service technician. ***Note****: Power must be supplied to the unit and main chiller disconnect must remain in the ON position.*
	Chiller visually checked for any signs of shipping damage (i.e.; damaged crating, bent panels, fluid leaks, etc.).
	Air-bleeder valves must be installed at the highest point of the site piping to allow for 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: _____

KKT chillers, Inc.
1280 Landmeier Road, Elk Grove Village, IL 60007
T:847 734 1600 I F: 847 734 1601 I E: sales@kkt-chillersusa.com I W: www.kkt-chillersusa.com

Revision: V01 Page 1 Effective Date: 09.16.2015

Start-up checklist

○ Startup
○ Preventative Maintenance
○ Service Work Order

Attention: *To avoid site issues, never turn off chiller without prior permission from site personnel.*

Site Information

Site name:			Date:	(MM/DD/YYYY)
Site address:				
Technician:			SO/PO#:	
Equipment location:	Roof ☐	Same level ☐	Below ☐	Other ☐ _____
Model:				
Serial/produce:				

Refrigerant type:	R407C ☐	R134A ☐	R410A ☐	Other ☐ _____

Checklist	Yes	N/A		Yes	N/A
Unit is completely assembled	☐	☐	Condenser coil clean	☐	☐
Water quality checked	☐	☐	Condenser coil fins straight	☐	☐
Water circuit checked for leaks	☐	☐	Correct fan rotation	☐	☐
Pump bearings / seals leak free	☐	☐	Electrical connections tight	☐	☐
Water circuit properly purged of air	☐	☐	Relay replaced	☐	☐
No obstructions above chiller	☐	☐	Communication interface checked	☐	☐
Min. 40 inch clearance around chiller	☐	☐	Chiller operation checked using Eco Data logger	☐	☐
Refrigeration piping checked for leaks	☐	☐	PM label applied	☐	☐

Electrical

Incoming supply voltage:	L1 _____	L2 _____	L3 _____	Crankcase heaters operational ☐ ☐
Supply amperage:	L1 _____	L2 _____	L3 _____	Remote display operational ☐ ☐

Amperage

Pump 1	L1 _____	L2 _____	L3 _____	Pump 2	L1 _____	L2 _____	L3 _____
Compressor 1	L1 _____	L2 _____	L3 _____	Compressor 2	L1 _____	L2 _____	L3 _____
Cond. fan 1	L1 _____	L2 _____	L3 _____	Cond. fan 2	L1 _____	L2 _____	L3 _____
Cond. fan 3	L1 _____	L2 _____	L3 _____	Cond. fan 4	L1 _____	L2 _____	L3 _____

Mechanical

Compressor 1 model # _____			Serial # _____	
Compressor 1 oil level	Empty ☐	1/4 ☐	1/2 ☐	3/4 ☐
Compressor 2 model # _____			Serial # _____	
Compressor 2 oil level	Empty ☐	1/4 ☐	1/2 ☐	3/4 ☐

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○ Startup
○ Preventative Maintenance
○ Service Work Order

KKT chillers

Attention: *To avoid site issues, never turn off chiller without prior permission from site personnel.*

Mechanical (Continued)

Pump 1 model #_____		Serial #_____	
Type of glycol _____	Propylene ☐	Ethylene ☐	Percentage_____
Water	Distilled ☐	Deionized ☐	Tap Water ☐
Pump 2 model # _____		Serial # _____	
Type of glycol _____	Propylene ☐	Ethylene ☐	Percentage_____
Water	Distilled ☐	Deionized ☐	Tap Water ☐

Pressure

Pump 1	Suction_____	Discharge_____
Pump 2	Suction_____	Discharge_____
Compressor 1	Suction_____	Discharge_____
Compressor 2	Suction_____	Discharge_____

No.	Description	Circuit 1	Circuit 2
1	Condensing outlet temperature	°C	°C
2	Liquid temperature	°C	°C
3	Sub cooling	°K	°K
4	Evaporation outlet temperature	°C	°C
5	Suction gas temperature	°C	°C
6	Superheat	°K	°K

Ambient temperature: ____ °C

Coolant temperature: ____ °C

Note: Above readings must be taken while chiller is operating against a heat load

Comments

Attention: *Please check with site personnel when work is complete, and reset any equipment that may have faulted during service.*

Follow-up required? ☐ Yes ☐ No Customer Signature: _____ Date: _____

Please return the completed form to KKT chillers: techsupport@kkt-chillersusa.com

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