# Water Cooled Chiller Construction Checklist

 (rev. 12/1/2015)

|  |  |
| --- | --- |
| Project |  |
| Date |  | Location |  | Service Area |  |

## Submittal

The above equipment and systems integral to them are complete and ready for functional testing. The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor. This construction checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable functional tests being performed.

* List attached

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| Mechanical Contractor | Date | Controls Contractor | Date |
|  |  |  |  |
| Electrical Contractor | Date | General Contractor | Date |
|  |  |  |  |
| TAB Contractor | Date |  |  |

Construction checklist items are to be completed as part of startup and initial checkout, before functional testing.

* This checklist augments, but is not meant to replace recommendations or requirements for installation, checkout and startup from standards, manufacturers, codes or governing bodies.
* If this form is not used for documenting, a CxP approved form of similar rigor may be used.
* Contractors assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.
* In the Trade column, indicate the contractor responsible for verifying the completion of this item:
A/E = architect/engineer All = all contractors CxP = commissioning provider
CC = controls EC = electrical GC = general
MC = mechanical PC = plumbing SC = sheet metal
TAB = test and balance

## CxP Approval

This filled-out checklist has been reviewed. Its completion is approved with the exceptions noted below.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| Commissioning provider | Date | Owner’s Representative | Date |

## Chiller 1 Information

|  |  |  |  |
| --- | --- | --- | --- |
| Make |  | Model |  |
| Serial Number |  | Capacity |  |
| GPM |  | Volts/Phase |  |
| Refrigerant |  | Charge |  |
| Label |  | Label |  |
| Comments |

## Requested Documentation

Mark checkbox if the document was received. If not, indicate the number of an applicable explanatory note.

|  |  |  |
| --- | --- | --- |
| Requested Documentation Submitted | Rec’d | Note # |
| Manufacturer’s Cut Sheets  | [ ]  |  |
| Performance Data  | [ ]  |  |
| Installation and Startup Manual  | [ ]  |  |
| O&M Manuals  | [ ]  |  |
| Factory Test Results  | [ ]  |  |
| Sequences and Control Strategies | [ ]  |  |
| Warranty Certificate  | [ ]  |  |
| Startup Report | [ ]  |  |
| Comments: |  |  |

## Installation Checks

If acceptable, mark the check box. If unacceptable, indicate the number of the applicable explanatory note attached to this form.

|  |  |  |
| --- | --- | --- |
| General | OK? | Note # |
| General appearance good, no apparent damage | [ ]  |  |
| Proper vibration isolators installed and adjusted | [ ]  |  |
| Seismic restraints in place | [ ]  |  |
| Pipe fittings and accessories complete | [ ]  |  |
| Hydronic system flushing complete and strainers cleaned | [ ]  |  |
| Evaporator air vent provided | [ ]  |  |
| Condenser air vent provided | [ ]  |  |
| Refrigerant relief pipe extended to outside | [ ]  |  |
| Test plugs (P/T) installed near all control sensors and as per spec | [ ]  |  |
| Flow switch installed as required | [ ]  |  |
| Proper refrigerant level | [ ]  |  |
| Proper oil level | [ ]  |  |
| Purge unit installed, if specified | [ ]  |  |
| Equipment labels affixed | [ ]  |  |
| Oil heater installed properly | [ ]  |  |
| Oil filter clean | [ ]  |  |
| No leaking apparent | [ ]  |  |
| Adequate maintenance access to all components | [ ]  |  |
| Piping | OK? | Note # |
| Piping installation checked against the drawings and all devices gages and appurtenances are in place | [ ]  |  |
| Piping supported independently of the chiller | [ ]  |  |
| Piping type and flow direction labeled on piping | [ ]  |  |
| Isolation valves, balancing valves and piping specialties installed | [ ]  |  |
| System flushing complete and strainers cleaned | [ ]  |  |
| Hydronic system flushing complete and strainers cleaned | [ ]  |  |
| Electrical and Controls | OK? | Note # |
| Power disconnect is located within site of the unit it controls and labeled | [ ]  |  |
| All electric connections tight | [ ]  |  |
| Grounding installed for components and unit | [ ]  |  |
| Safeties installed and operational | [ ]  |  |
| Starter overload breakers installed and correct size | [ ]  |  |
| All control devices and wiring complete | [ ]  |  |
| Control system interlocks connected and functional | [ ]  |  |
| Size of overcurrent heater in motor starter correct (where applicable) | [ ]  |  |
| HOA Switch installed per manufacturer’s instructions (if applicable) | [ ]  |  |
| Operation of HOA switch checked in all positions  | [ ]  |  |
| Proper safeties in control when HOA switch in Hand position | [ ]  |  |
| Sensors and Gages | OK? | Note # |
| Temperature, pressure and flow gages and sensors installed | [ ]  |  |
| Piping gages, BAS and associated panel temperature and pressure readouts match | [ ]  |  |
| TAB | OK? | Note # |
| Installation of system and balancing devices allowed balancing to be completed following specified NEBB or AABC procedures and contract documents | [ ]  |  |
| Comments: |  |  |

## Operational Checks

If acceptable, mark the check box. If unacceptable, indicate the number of the applicable explanatory note attached to this form.

|  |  |  |
| --- | --- | --- |
|  | OK? | Note # |
| Measure line to line voltage phase imbalance for compressor:(%Imbalance = 100 x (avg. - lowest) / avg.)Record imbalance of compressor. Imbalance less than 2%? | [ ]  |  |
| Record full load running amps for compressor. \_\_\_\_\_rated FL amps x \_\_\_\_\_\_srvc factor = \_\_\_\_\_\_\_ (Max amps). Running less than max? | [ ]  |  |
| No unusual noise and vibration when running | [ ]  |  |
| Compressor interlocking with oil pressure | [ ]  |  |
| Adequate oil pressure when compressor shaft is turning | [ ]  |  |
| Specified sequences of operation and operating schedules have been implemented with all variations documented | [ ]  |  |
| Specified point-to-point checks have been completed and documentation record submitted for this system | [ ]  |  |
| Startup report completed with this checklist attached. (Includes full listing of all internal settings with notes as to which settings are BAS controlled or monitored and which are integral | [ ]  |  |
| Startup report includes written certification from chiller manufacturer that all specified features, controls and safeties have been installed and are functioning properly and that the installation and application comply with the manufacturer’s recommendations | [ ]  |  |
| Piping gages, BAS and chiller panel temperature and pressure readouts match (see calibration section below) | [ ]  |  |
| Comments: |  |  |

## Sensor and Actuator Calibration

All field-installed sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated in accordance with Specification Section [\_\_\_\_\_\_\_\_\_\_\_\_\_]

All test instruments shall have had a certified calibration within the last 12 months? 🞎Y/N🞎

Sensors installed in the unit at the factory with calibration certification provided with no additional wire being added to the controller need not be field calibrated.

NOTE: This form need not be filled in if the information is in the control contractor’s checkout forms.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sensor or Actuator Tag & Location | Location OK? | First Gage or BAS Value | Instrument-Measured Value | Final Gage or BAS Value | Pass? |
|  | 🞎Y/N🞎 |  |  |  | 🞎Y/N🞎 |
|  | 🞎Y/N🞎 |  |  |  | 🞎Y/N🞎 |
|  | 🞎Y/N🞎 |  |  |  | 🞎Y/N🞎 |
|  | 🞎Y/N🞎 |  |  |  | 🞎Y/N🞎 |
|  | 🞎Y/N🞎 |  |  |  | 🞎Y/N🞎 |
|  | 🞎Y/N🞎 |  |  |  | 🞎Y/N🞎 |

|  |
| --- |
| General Comments: |

End of Checklist