REV	03
Data	August 2023
Supersedes	D-SSMHP01306-21_02EN

Service Manual

Startup Guide – EWYT_B

Original instructions

CE

Contents

1 Technician Qualifications

Initial startup on Daikin chillers must be performed only by Daikin Service Technicians or Authorized Service Providers. The contents of this manual are not intended as a substitute for professional skills training, or knowledge and practice of industry standards. Additional literature will be required that is product and component specific, including: product Installation Manuals, Service Bulletins, selection data, system control and piping specifications, etc. (see List of References on *Paragraph 2* for a list of some supplemental items).

The following information is intended only as a guide for authorized personnel with a sound basic knowledge of HVAC equipment, mechanical systems, electrical wiring, controls, & microprocessors. Attempts by untrained or unauthorized persons to start, operate and service this equipment can result in equipment failure, personal injury, or death, as well as invalidation of product warranty. It is the responsibility of the technician to ensure that proper safety equipment safe practices are used.

Be sure that before beginning any work, the Startup Service Technician has reviewed and is thoroughly familiar with all Daikin Factory Service Safety Policies and Procedures and has reviewed any Service Bulletins or Rapid News regarding this product.

2 Required Tools and Supplies

In addition to standard tools needed on most service jobs, be sure to bring the following items to the jobsite for Startup:

- ☑ Personal Protective Equipment (Safety)
- ☑ Commissioning Sheet
- ☑ Chiller Technical Data, Selection Sheet, and Certified Submittal Drawings
- ☑ Manuals:

  Note: Be sure that all manuals are the current revision appropriate for this unit.
  - This Manual: Startup Guide – EWYT-B
  - Installation, Operation and Maintenance Manual (last revision)
  - Control Manual: EWYT-B (last revision)
  - EWYT-B P&ID (last revision)
  - Wiring Diagram
- ☑ Other technical reference material as necessary
- ☑ Current operating software version downloaded and ready to install if needed:
  - NASH_HP (last version)

Software could have new release. Please check on DAE software repository last available version

- ☑ Miscellaneous gauges and hand tools, including:
  - Electronic Leak Detector
  - Differential Pressure Gauge (*adequate for system pressures)*
  - Phase Rotation Meter
  - Refrigeration Gauge Manifold (*Range: 50bar, Accuracy: ±0.5% of Final Value, Resolution: 0.01bar/0.1psi/1kPa*)
  - Digital thermometer (*Range: -50°C/+150°C, Accuracy: ±0.1°C, Resolution: 0.1°C*)
  - Amp probe
  - Voltmeters
  - Recover refrigerant cylinder (*for eventual charge adjustments*)
  - Full refrigerant cylinder *(for eventual charge adjustments)*
  - Recovery pump (*for eventual charge adjustments*)

3 Collaboration and Responsibilities

Throughout the installation and startup process, members of the Daikin Service Department (Supervisor / Coordinator / Technician) must establish contact and meet regularly with the following persons and/or their designated representatives:

- Mechanical, Electrical, and Controls Contractors
- Installing Contractor
- Daikin Sales Department
- Customer/Owner
- Personnel to be trained in unit operation

It is the responsibility of the Daikin Service Representative to ensure that all items on the *Pre-Power On Checklist* are complete and the system is ready for start-up. Upon arrival at the jobsite, the DAIKIN Service technician will verify that all items on the *Pre-Power On Checklist* are complete.
The Chiller Start-up Technician must confirm that the unit installation conforms to Daikin specifications and requirements. This includes mounting and support, piping, electrical and control installations related to the unit. These items must, as a minimum, meet acceptable industry standards and Daikin published requirements. All factory supplied controls and valves must be set and, where required, calibrated. Electrical power and control wiring must be selected and sized as specified by Daikin and the applicable electrical code.
The various contractors associated with the installation have the responsibility to provide the following items (as noted on the Pre-Start Checklist), in accordance with the product IOM, applicable codes and acceptable practices for the trade involved. Note any discrepancies on Commissioning Sheet and notify Supervisor as appropriate. Ensure that access to appropriate systems is available for startup operations.

4 Before Arriving at Jobsite

- Review and Verify Pre-Commissioning Sheet received from the Installer/Customer (*Table D*) Company/Contractor.
- Review Required Materials List on (refer to paragraph 2) and gather necessary items.
- Review Unit Design Specifications.
- Review Unit Selection Sheet.
- Review Startup Guide and Commissioning Form.
- Review IOM.
- Review Control Manual.
- Establish estimated timeline and milestones for Startup.

5 Upon Arrival at Jobsite

Meet with Mechanical, Electrical, and Control Contractors to discuss Startup Process and identify any potential issues that may interfere with a successful startup.

Be sure to meet with the Controls Contractor to discuss and clarify the chiller control sequence and settings for the chiller, towers, pumps, BAS integration, etc…

6 Pre-Power on Checks

Initial Chiller Inspection has to be performed according to the ***Pre-Power On Checklist*** of the Commissioning Sheet by following the instruction below shown.

Verify that all the items are correct. If the system is not ready and/or items on the Pre-Power On Checklist are incomplete, the technician should immediately notify his supervisor and request direction on how to proceed. A separate work order authorization may be required.

6.1 Visual Inspection

- Inspect the chiller for shipping/installation damage including fans and internal parts of condenser;
- Verify that chiller is adequately located and level mounted as per the IOM (***Paragraph 2.5***) according to the minimum space requirements (***Paragraph 2.6***)
- Verify that appropriate anti vibration pads are installed.
- Visually inspect for oil and refrigerant leaks.
- Record component model and serial numbers as appropriate on Commissioning Form.
- Clean the chiller from any foreign debris and surrounding area.

Note any issues in the Commissioning Form (***Pre-Startup Comments***)

6.2 Leak Test

Before to start with Leak Test, verify that during stock period (from Delivery Date), leak tests have been performed periodically as per local FGas Regulation. Collect all leak test reports for recording purpose.

Connect service gauges. Confirm pressure in the condenser and evaporator, to verify that charge was not leaked during storage/shipping. Using Electronic Leak Detector, leak check entire unit. Be sure to note any leaks found and repairs performed on the Commissioning Sheet. Follow all applicable industry and regulatory authority standards. If refrigerant loss is catastrophic, startup may need to be postponed until appropriate warranty leak repairs are completed.

Note any issues in the Commissioning Form (***Pre-Startup Comments***)

6.3 Water Piping System Check

- Verify water piping as per IOM (***Paragraph 2.8***). A 1000micron water filter must be present at least 5m far from the inlet port of the evaporator. Missing filter results withdraw of heat-exchangers warranty.
- Verify if proper glycol percentage for the application in accordance with Daikin specifications is present as per IOM (**Paragraph 2.12**)
- Walk length of piping system (in equipment area). Ensure that connections are correctly installed, and piping is properly supported (i.e., not supported by the chiller). Flanges must not be stressed.
- Check evaporator piping for proper flow direction through vessels by consulting Dimensional Drawing. If flow is incorrect, notify Mechanical Contractor, Service Supervisor, and Sales Rep.
- Verify that water pressure gauges are installed at proper locations
- Confirm that all piping specialties (expansion tank, make-up, relief, vents, etc), water pumps are properly installed.

Note any issues in the Commissioning Form (***Pre-Startup Comments***)

6.4 Water Flow

Use Differential Pressure Gauge at the inlet/outlet nozzles of the unit connections to measure the pressure drop across the exchanger/exchangers.

Compare actual flow with Pressure Drop specified on the Unit Selection Sheet. Verify that actual flow is in line with the selection data.

If the measured flow isn't in line with the selection data, then refer to the CSS (Chiller Selection Software) for the verification of allowability of the measured water flow.

If flow is outside of acceptable margins, corrective action is required. If flow is too high, valves may be adjusted to trim flow. If flow is too low, notify Installing Contractor, and note on the Commissioning Form. If flow is different from the selection data, notify Service Supervisor and Sales Rep. Correction may be required prior to startup.
Note any issues in the Commissioning Form (***Pre-Startup Comments***)

6.4.1 Fixed speed control

Note: *The following procedure is not necessary in case of DT and VPF control*

Use Differential Pressure Gauge at the inlet/outlet nozzles of the unit connections to measure the pressure drop across the exchanger/exchangers.

Unit Mode → Test

Commission unit → Manual Control → Unit → Pump #

- Set *Pump 1 > On* to enable the Pump 1
- Fine tune the % speed to get Pressure Drop specified on the Chiller Selection Sheet
- Disable the pump when the correct speed is found: *Pump 1 > Off*

Go back to main menu to set the fixed speed value for the pump in running condition:

View/Set Unit → Pumps → Speed #1/#2

6.4.2 On-Off Control

Use Differential Pressure Gauge at the inlet/outlet nozzles of the unit connections to measure the pressure drop across the exchanger/exchangers.

Unit Mode → Test

Commission unit → Manual Control → Unit → Pump #

Compare current flow with Pressure Drop specified on the Chiller Selection Sheet. Verify that actual flow is in line with the selection data.
If flow is outside of acceptable margins, corrective action is required:

- If flow is too high, valves may be adjusted to trim flow.
- If flow is too low, notify Installing Contractor, and note on the Commissioning Form. If flow is different from the selection data, notify Service Supervisor and Sales Rep. Correction may be required prior to startup.

Disable the pump when the correct speed is found: *Pump 1 > Off*

6.4.3 VPF and DT control

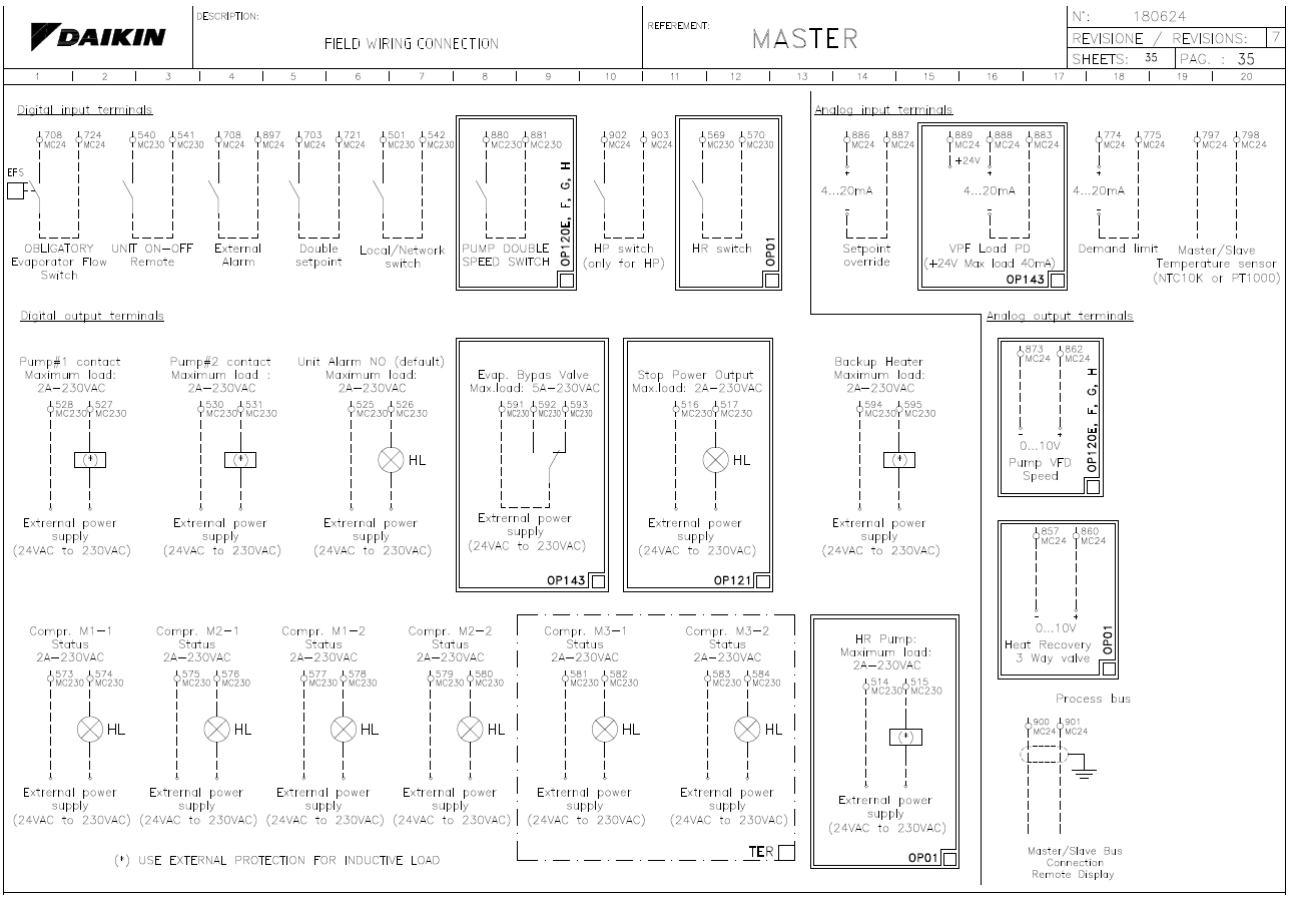
Verify the Pump Mode settings in the menu

View/Set Unit → Pumps

For more information and settings about the Variable Primary Flow, refer to servicesupport@daikinapplied.eu

6.5 Electric Connections Check

- Verify the Electric connections, Cable requirements, Interconnection cables and Phase unbalance as per IOM (***Paragraph 2.13***)
- *Verify the proper electrical phasing U-V-W of the loads (fans, compressors, and pumps) for L1, L2 and L3 respectively.*
- Verify Field wiring correctness according to the unit wiring diagram



External power supply needed for Digital output terminals
Analog Inputs must be generated through external auxiliary voltage
For Collective Housing (Opt.205) Water tank probe electrical connection is the same of Master/Slave Temperature Sensor (MC24: 797 – 798)

Note any issues in the Commissioning Form (***Pre-Startup Comments***)

7 Pre-Startup Checks

Once the "*Pre-Power On Checks"* are completed, the technician can proceed with the Pre-Startup Checks by turning on the unit main switch.
Pre-Startup checks must be performed according to the ***Pre-Startup Checklist*** of the Commissioning Sheet by following the instruction below shown.

Make sure that unit switch (Q0) is set in OFF state before turning on the unit main switch

Verify that all the items are correct. If the system is not ready and/or items on the Pre-Startup Checklist are incomplete, the technician should immediately notify his supervisor and request direction on how to proceed. A separate work order authorization may be required.

7.1 Voltage Check

- Check the water flow safety switches: verify that field-installed flow switches are installed as per the manufacturer's instructions and IOM (***Paragraph 2.8.2***)
- Verify the electric Main voltage and frequency
- Verify all on-board auxiliary transformer voltages
- Check the Compressor Heater current

Note any issues in the Commissioning Form (***Pre-Startup Comments***)

7.2 Flow Switches

- Check the water flow safety switches: verify that field-installed flow switches are installed as per the manufacturer's instructions and IOM (***Paragraph 2.8.2***)
- Any differential pressure switch connections must be made across the vessel they protect.
- Field-installed Flow switches should not be located close to any source of turbulence and should be located in inlet or outlet piping of the vessel away from any shutoff valves or isolation devices.
- Verify flow switches operation, by throttling the flow and verify that switch opens when flow rate fall below 50% of nominal operating flow rate.

Note any issues in the Commissioning Form (***Pre-Startup Comments***)

7.3 Control Settings

- Check all MicroTech 4 controller settings to verify they are optimized for application conditions.
- Download and/or install updated software as needed.
- Verify settings of all safety and operating controls.

7.3.1 Unit Configuration

On the unit controller, enter the “Technician Password” and go into Main Menu → Commission Unit → Configuration → Unit menu and after, Option menu.

Unit menu			
Setpoint	**Default**	**Range**	**Description**
Type	EWYT155B-SSA2	EWYT085B-(X/S)(S/R/L)AX EWYT650B-(X/S)(S/R/L)AX	Set the model name of the unit according to the unit label
Compressor C1	15+15	- 15+15 15+25 25+25 25+40 40+40 40+25+40 40+40+40	Set the compressor size and sequence* Note*: this parameter is auto selected after the selection of the unit Type
Compressor C2	15+15	- 15+15 15+25 25+25 25+40 40+40 40+25+40 40+40+40	Set the compressor size and sequence* Note*: this parameter is auto selected after the selection of the unit Type
Fans C1	8	- 2,3,4,5,6,7,8,9,10	Set the number of the fans dedicated to the circuit #1 Note*: this parameter is auto selected after the selection of the unit Type
Fans C2	-	- 2,3,4,5,6,7,8,9,10	Set the number of the fans dedicated to the circuit #2 Note*: this parameter is auto selected after the selection of the unit Type
Fans Control	VFD	VFD SpeedTroll Step	Set the device used in the regulation of the fans speed Note*: this parameter is auto selected after the selection of the unit Type
Apply changes	No	Yes No	Use this command to reset the controller to confirm the configuration made
Option menu			
Apply changes	No	Yes No	Use this command to reset the controller to confirm the configuration made
Backup Heater	No	Yes No	Select “Yes” if you have the Backup Heater
Communication 1/2/3	None	None IP LON MSTP Modbus AWM	Select if there is the communication module connected on the left side of the controller. • Modbus = POL902.00 • IP = POL908.00 • MSTP = POL904.00 • LON = POL906.00 • AWM = POL909 .00

Demand Limit	No	No Yes	This function allows the unit to be limited to a specific maximum load
Energy Meter	None	None Nemo D4-L Nemo D4-Le NanoH	Set the model of energy meter installed on the unit.  Nemo D4-L  Nemo D4-Le  NanoH
Ext Alarm	No	No Event Rapid Stop Pumpdown	This option permit to choose the operations for the unit in case an external event occur
Free Cooling	No	No Hydronic Light Full	Set the kit installed on the unit (from the selection sheet)
Heat Recovery	No	No Partial Total	Set the kit installed on the unit (from the selection sheet)
Leak Detector	No	No Yes	Set whether or not the leak detector is present.
Modem Type	None	MachineLink Teltonika	Set as per brand modem installed
M/S Address	None	None Master Slave 1 Slave 2 Slave 3	Enabling of the Master & Slave feature
M/S Num Of Units	2	2 3 4	Number of units in Master & Slave system
M/S Sensor Type	None	None NTC10K PT1000	Master & Slave common water sensor type
M/S BackToBack	N/Cfg	N/Cfg Cfg	Management in M/S of two unit sharing the same set of evaporator pump and flow switch
PVM	No	No Yes	Set whether or not the phase monitoring device is present
Pump Type	On-Off	On-Off Fixed Speed VPF DT	Set the type of the pump
Load PD Sns	None	0-10V 4-20mA BMS None	Set the type of input for pressure drop measure on the plant

Heating Only	No	No Yes	Select “Yes” if you have Opt.188: Heating Only mode
Collective Housing	No	No Yes	Select “Yes” if you have Opt.205: Collective Housing Application Note: after Apply changes application (controller rebooting), the Collective Housing menu configuration is available in *View/Set Unit > Collective Hsng.* Function must be enabled by the string *CollectiveHsng En > Yes* For Collective housing function configuration info, refer to the operating manual ***Paragraph 4.17***)
Fan Max speed	No	No Yes	Select “Yes” if you have one of the following options: • Opt.142A (High Ambient Kit Light) • Opt.142B/C (High Ambient Kit) • 100Pa (Opt.160) • 100Pa + VFD (Opt.160C) • 200Pa (Opt.161B)
SwitchBoxT	No	No Yes	Set whether or not the temperature sensor inside the electrical box is present
Setpoint Reset	No	No 4-20 mA DT OAT	Set which is the command for the setpoint reset function
Nordic Kit Heater	No	No Yes	Select “Yes” if you have Opt.114: Nordic kit
DLT Logic	No	No Yes	Set “Yes” if you have Opt.204 (Low Ambient Comfort Heating)
SGEnable	Off	Off On	Set “Yes” if you have the Smart Grid Box
Display Units	Metric	Metric English	Unit of measure displayed

At the end of the Unit Configuration, a restart of the controller (“Apply Changes”) is required BEFORE carrying out the Circuit Configuration

7.3.2 Software Options

The possibility to employ a set of software options has been added to the functionality of the chiller, in according with the new MicroTech 4 installed on the Unit. The Software Options do not require any additional hardware and regard communication channels and the new energy functionalities.

During the commissioning the machine is delivered with the Option Set chosen by the customer; the Password inserted is permanent and depends on the Serial Machine Number and the Option Set selected.

The available options are:

1. Modbus Slave MSTP
2. BACNet MSTP
3. BACNet IP
4. Performance Monitoring. The Energy Monitoring is a software option not requiring any additional hardware. It can be activated to achieve an estimation (10% partial load - 15% full load accuracy) of the instantaneous performances of the chiller in terms of:
   - Cooling Capacity
   - Power Input
   - Efficiency-COP

   An integrated estimation of these quantities is provided.
5. iCM Standard for settings refer to the latest version of iCM IOM “*D-EOMOC00610-21*”
6. iCM Advanced for settings and configuration contact servicesupport@daikinapplied.eu

7.3.2.1 Performance Monitoring Option

On the unit controller, enter the “Technician Password” and go into:

View/Set Unit → Unit Energy Monitoring → Energy Settings

Fan Type	No	No KEMAO Ø460/500 KEMAO Ø850 DAE Ø800 EBMP EC A3G800 – AU2103	Select the fan model, if **option 186 – PERFORMANCE MONITORING** is available on the unit Refer to **Fan Series HP R32 Table** to select the correct fan model **Note:** 1. For the fan KEMAOØ460 and KEMAOØ500 the section is the same 2. For the fan KEMAO ODS 800C BRS select the Fan Type as KEMAOØ850 3. If the fan control is Speedtroll, select the Fan Type the model related to the Fan Step (Do not consider the first model fan controlled by 0-10V)
Pump Type	0	0÷27	Select the pump model installed on the unit if option 186 – PERFORMANCE MONITORING is available. Refer to **Pump Models HP Series R32 Table** to determine the correct pump model in function of the Unit version and the pumps characteristics (Single/Double ; Low/High Lift). To determine the pump characteristics, refer to the selection sheet. Once the correct pump model has been determined, refer to **Crossed reference Pump Model – Pump Type Table** to select the corresponding “Pump Type” value

After termination of the Software Options configuration, it's necessary to restart the controller to activate the settings made through the "Apply changes" command.

7.4 Alarm Limits

On the unit controller, enter the “Technician password” and set the alarm limits in the following menu:

Main Menu → Commission Unit → Alarm Limits

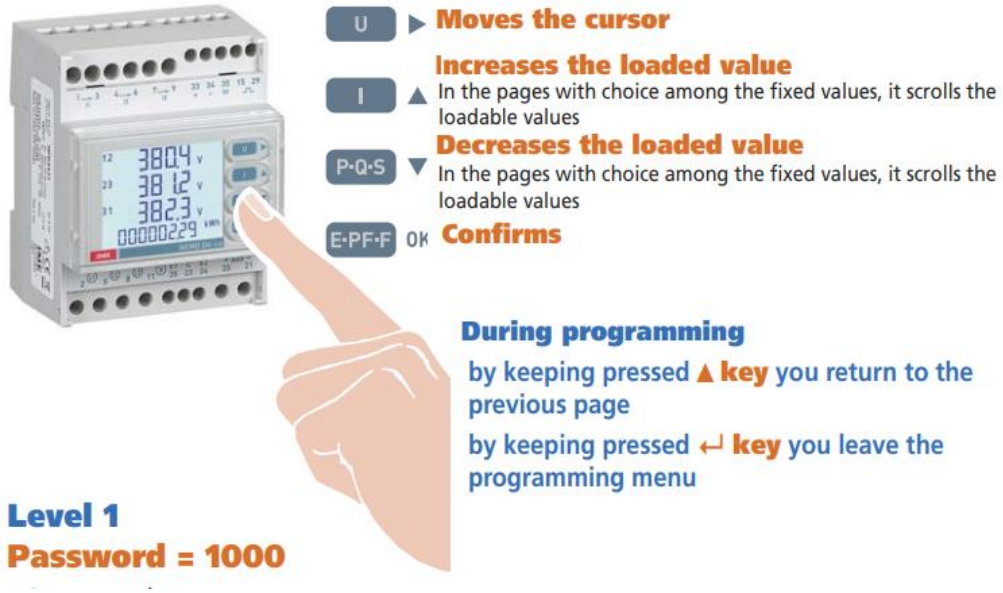
At the end of the Alarm Limits setting a restart of the controller (“Apply Changes”) is required BEFORE to proceed with the startup of the unit.

7.5 Energy Meter

7.5.1 IME – Nemo D4-Le MFD4421

If the unit is provided with Opt.16/16a, proceed with the energy meter settings check.

Function of the buttons:



Access the setup menu

1) Press “EPFF” repeatedly until the page is displayed : “ nd65 „
2) Press and hold the “EPFF” button until you see the page: “PASS”
3) Enter the password “1000” and confirm with the “EPFF” button

The “arrow” ► is used to move between the various digits, while ▲▼ is used to increment or decrement the numerical value of each digit. The ENTER key is used to confirm the password.

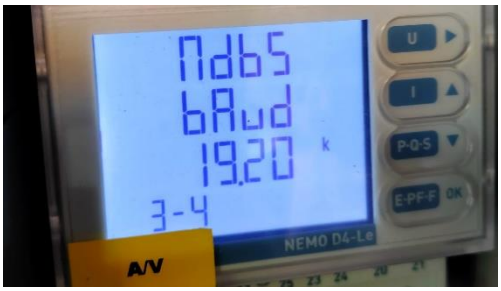
Depending on the wiring configuration, the respective programming scheme must be selected.

1) Log in with the password “1000”
2) Press the “EPFF” button repeatedly until the page is displayed: “SYS”
3) Select the desired configuration: **3-2e** if the number of current transformers is 2, which is the standard configuration.

In case the energy meter is integrated with the Modbus communication network of the POL688 controller of the chiller unit, the Modbus parameters of the Nemo energy meter needs to be updated. It will be necessary to configure the address, transmission speed and parity bit on the energy meter corresponding to those on the chiller controller (POL688)

1) Log in with the password "**1000**"
2) Press "EPFF" repeatedly until the page is displayed: "MDB Addr"
3) Select Address **20**

4) Press "EPFF" repeatedly until the page is displayed "MDB Baud"
5) Select the baud rate **19200**

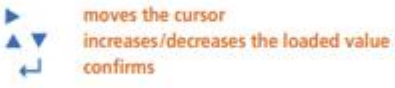


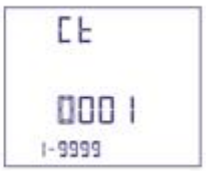
6) Press "EPFF" repeatedly until the page is displayed: "MDB par"
7) Select **None** Parity bit

8) Press "EPFF" repeatedly until the page is displayed "SAVE"

Set the transformation ratio of the current transformers (CT ratio)

On the label of the CT it's indicated what the maximum primary and secondary currents are.
For example max primary current 1250A / max secondary current 5A gives an CT ratio of 250 (1250/5)





The nominal current value at the Ime Nemo Energy meter input terminals should be between 1A~5A. Do not use CT's that exceed this range in order to avoid damage to the energy meter!

7.5.2 FRER – NanoH

If the unit is provided with Opt.16/16a, proceed with the energy meter settings check.

Access the setup menu

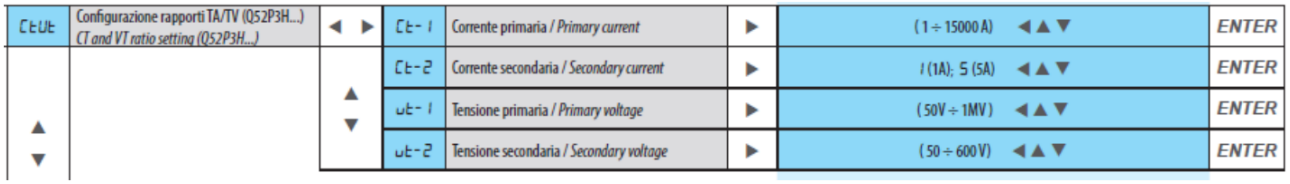
1. Press and hold the "Enter" button for 3 seconds
2. Enter the password (factory default **0000**) to access the configuration submenu
   In case of forgetting the password, the instrument also accepts the "jolly" password: **2730**

The arrow ◄ is used to move between digits, while ▲▼ is used to increment or decrement the numerical value of each digit.
The "Enter" button is used to confirm the password.

Set up the energy meter wiring configuration

Depending on the wiring configuration, the respective programming scheme must be selected

1. Log in with the password "**0000**"
2. Press the "▼" button several times until you see the page: "**C-tut**".



Depending on the absorption range of the current transformer and its output, it is necessary to set the primary/secondary current ratio.

For example: if the TA has input 800A and output 5A, the CT ratio is 800A / 5A = 160.

3. Select the sub-category "**Ct-1**", press "**Enter**" and set the input current value to the TA. To confirm press "**Enter**"
4. Select the sub-category "**Ct-2**", press "**Enter**" and set the output current value to the TA. To confirm press "**Enter**"

The current nominal value at the input of the energy meter is 1A or 5A. Do not exceed the range in order to avoid damage to the energy meter.

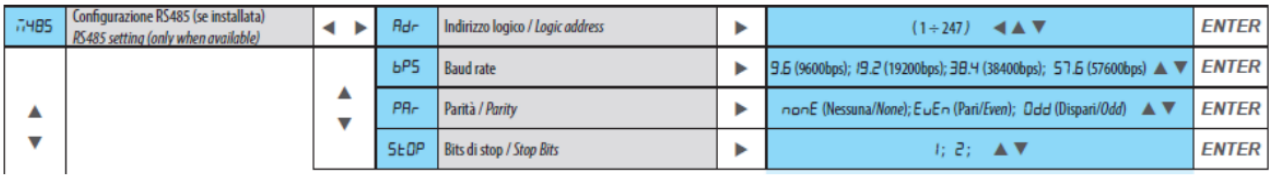
5. Select the sub-category "**ut-1**", press "**Enter**" and set the nominal voltage value. To confirm press "**Enter**"
6. Select the sub-category "**ut-2**", press "**Enter**" and set the nominal voltage value. To confirm press "**Enter**"

As no voltage transformers are installed, the nominal voltage values at the input and output of the energy meter are both set equal to the nominal voltage value.

Set parameters for Modbus® communication (where applicable)

It is necessary to configure the address, data transmission speed and parity bits on the energy meter corresponding to those on the controller.

1. Log in with the password "**0000**"
2. Press the '▼' button several times until you see the page: '**R485**' and press **Enter**



3. Select the subcategory "**Adr**", press "**Enter**" and select address **21**. To confirm press "**Enter**".
4. Select the subcategory "**bPs**", press "**Enter**" and select data transmission speed **38.4** (38400 bps). To confirm press "**Enter**".
5. Select the subcategory "**Par**", press "**Enter**" and select the parity bit **Even**. To confirm press "**Enter**".
6. Select the subcategory "**Stop**", press "**Enter**" and select the stop bit **1**. To confirm press "**Enter**".

The values to be entered are summarised in the following table:

Adr	21
bPS	38.4 bps
Par	Even
Stop	1

7.6 Pre-Running Adjustments

Pre-Running Adjustments must be separately performed for each circuit

It is highly recommended to use a double sample sensor for the calibration of temperature sensors

7.6.1 Check and calibration of unit temperature sensors

Calibration of unit temperature sensors is a fundamental step for the correct operation of the unit.
There are three (or four) temperature sensors to be calibrated (for each circuit):

- Evaporator LWT
- Evaporator EWT
- OAT
- System Temperature (Master/Slave - iCM or Collective Housing function)

7.6.1.1 Evaporator Leaving Water Temperature

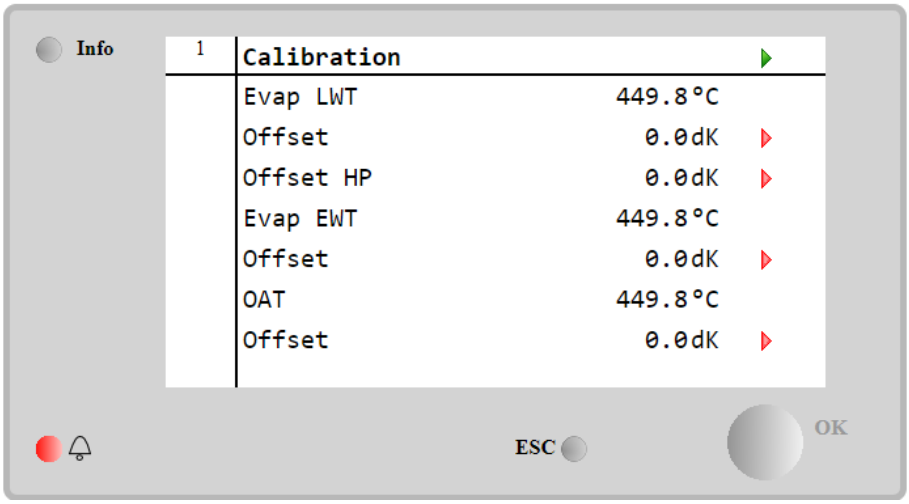
- Place the sample and Evap LWT sensors in a container with ice
- Enter in *Commission Unit* → *Sensors Calibration* → *Unit* menu and then compare the Evap *LWT* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Offset* parameter.

Make sure to have a good water/ice mix and wait for the water/ice system temperature to stabilize before to proceed with the calibration.
Place both sensors (sample and unit) in the middle of the container in order to not affect the readings.

INFORMATION

- If the first test is carried out in chiller mode (water temperature under 20°) set EVAP LWT offset
- If the first test is carried out in heat pump (water temperature over 20°) set EVAP LWT offset HP

EVAP LWT Offset HP has been introduced from software version NASH_HP 1.08.A



7.6.1.2 Evaporator Entering Water Temperature

- Place the sample and Evap EWT sensors in a container with ice
- Enter in *Commission Unit* → *Calibrate Sensors* → *Unit* menu and then compare the Evap *EWT* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Offset* parameter.

Make sure to have a good water/ice mix and wait for the water/ice system temperature to stabilize before to proceed with the calibration.
Place both sensors (sample and unit) in the middle of the container in order to not affect the readings.

7.6.1.3 Outside Air Temperature

- Place the sample and suction temperature sensors in ambient temperature
- Enter in *Commission Unit → Sensors Calibration → Unit* menu and then compare the *OAT* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Offset* parameter.

7.6.1.4 Tank WTmp (Only for Collective Housing opt.205)

- Place the sample and suction temperature sensors in a container with ice
- Enter in *Commission Unit → Sensors Calibration → Unit* menu and then compare the *System Temperature* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Offset* parameter.

Make sure to have a stable air conditions and wait until read unit and sample temperatures are stabilized respect to air ambient temperature before to proceed with the calibration.

7.6.2 Check and calibration of circuit temperature sensors

Calibration of circuit temperature sensors is a fundamental step for the correct operation of the unit.
There are two temperature sensors to be calibrated (for each circuit):

- The Suction temperature sensor (ST-1 & ST-2)
- The Discharge temperature sensor (DT-1 & DT-2)`

7.6.2.1 Suction Temperature sensor

- Place the sample and suction temperature sensors in a container with ice
- Enter in *Commission Unit → Sensors Calibration → Circuit #1/2* menu and then compare the *Suction Tmp* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Suction Offset* parameter.

Make sure to have a good water/ice mix and wait for the water/ice system temperature to stabilize before to proceed with the calibration.
Place both sensors (sample and unit) in the middle of the container in order to not affect the readings.

Suction temperature sensor is the most crucial of chiller's sensors as will guarantee the correct working of the EXV and consequent safe compressor running

7.6.2.2 Discharge temperature sensor

- Place the sample and discharge temperature sensors in ambient temperature
- Enter in *Commission Unit → Sensors Calibration → Circuit #1/2* menu and then compare the *Discharge Tmp* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Disch Offset* parameter.

Make sure to have a stable air conditions and wait until read unit and sample temperatures are stabilized respect to air ambient temperature before to proceed with the calibration.

Refer to Table A for the complete overview of the components positioning.

7.7 Dry Tests

Perform the Dry Tests by setting the unit in "test mode":

1. Enter the "Technician Password" on the controller
2. Go in *Main Menu → Unit Mode → Mode*
3. Set *Test*

All the dry tests are performable through the following menu:

Main Menu → Commission Unit → Manual Control

7.7.1 Unit Alarm

Check the correct activation of the software general alarm:

Main Menu → Commission Unit → Manual Control → Unit → Unit Alarm

7.7.2 Pump #1/#2

Check the correct activation of the water pump (if it is controlled by the unit):

Main Menu → Commission Unit → Manual Control → Unit → Pump #1/#2

7.7.3 Fan

Check the correct functionality of the fans:

Main Menu → Commission Unit → Manual Control → Unit → Fan speed

In this menu is possible choose the capacity of the fan. Moreover, during this phase check the rotation sense of the fans, if it is right the force of the air must be from the floor to the top.

7.7.4 Compressor Heaters

Check the correct activation of compressor oil resistances:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → Crankcase Heater

7.7.5 High Pressure Switches Test

Test the high-pressure switches by physically disconnecting them from the unit and by testing them until the intervention pressure by connecting them to a pressurized nitrogen cylinder.

7.7.6 Expansion Valve

Verify the correct operation of the EXV valves:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 →EXV Position

And set the opening percentage, is possible verify the movement of the piston inside the expansion valve through the glass post on it.

7.7.7 Four Way Valve

Verify the correct operation of the 4-Way valves:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 →4- Way Valve

Listen if the solenoid valve is receiving the pulse when enabling the valve.

7.7.8 Compressor

In order to verify the correct rotation sense of the compressors some operation is needed:

- Check and verify the oil level inside the compressor through the oil sight glass post on the oil equilibration pipe connected at the bottom side of the compressors. The right level is between the bottom of the sight glass and ¾ of the full.
- Open the Discharge valve of the compressor branch (if it is present) → *Mechanical*
- Open the Suction valve of the compressor branch (if it is present) → *Mechanical*
- Open the Liquid line valve → *Mechanical*
- Turn on the water pump in order to guarantee the correct flow rate trough the evaporator (Pump1 or Pump2 if the devices are controlled by the unit software):

  Main Menu → Commission Unit → Manual Control → Unit → Pump#1/2 and Set On

Verify to carry out all the activity reported upon before proceeding with the compressor test

Now is possible verify the correct rotation sense of each compressor:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → Compressor 1/2/3 set On

After the start of the compressor if the rotation sense is right, is possible see:

- An increasing of the Condenser pressure at least 10 kPa
- A decreasing of the Evaporator pressure at least 10kPa

Is possible check directly in the Compressor 1/2/3 menu the upon pressure.

If the compressor doesn't make a lift in pressure, it is running in the wrong rotation sense. STOP IT!!

During this check pay attention to the evaporating pressure: if it drops below the pump down setpoint, open in a controlled way the expansion valve in order to reestablish the pressure inside the evaporator

When the compressor run in the opposite direction, it could be related to a wrong power supply Phases sequence. In order to solve this inconvenience, re-check the electrical power supply connection of the compressor and then verify the main supply connection.
Note any issues in the Commissioning Form (***Pre-Startup Comments***)

To avoid the possibility to break the compressor, run it only one per time

8 Start-Up

The first data acquisition for each circuit must be performed in “Cooling mode”, in order to also check the correctness of the refrigerant charge by measuring the subcooling at the filter dryer (refer to *E2.10* item of the *Commissioning Sheet*).

Make sure to open all the service valves before to perform the first unit Start-Up:

- ***Liquid line***
- ***Discharge line (if present)***
- ***Suction line (if present)***
- ***Turn on the water pump***

To do that, follow these steps, referring to the “Circuit #X”:

1. Enter the “Technician Password” on the controller
2. Go in Main Menu→Unit Mode → Mode and set Cool/Heat
3. Go in *Main Menu → Unit Enable*
4. Set *Circuit #1 → Enable, Circuit #2 →Disable*
5. Set *Unit → Enable*
6. *Set on Local the switch Q0*
7. *Set on Chiller QHP*

The circuit is now ready for the Running Adjustment *(paragraph 8.1)*

8.1 Running Adjustments

Running Adjustments must be separately performed for each circuit while it is running near the rating conditions.

Make sure that the circuit is working in cooling mode in stable conditions in order to don’t affect the following operations result

Make sure that the circuit status is “Run: Normal” before to proceed with the Running Adjustments

8.1.1 Check and calibration of pressure transducers

Calibration of pressure transducers is a fundamental step for the correct operation of the unit.
There are two pressure sensors to be calibrated (for each circuit):

- The suction pressure transducers
- The discharge pressure transducers

8.1.1.1 Evaporator Pressure

- Connect the sample transducer to the “T shape” pressure port on which the suction pressure transducer is installed.
- With the unit on, with the *Suction Temperature* of 7°C ± 1°C and before making gas charge adjustments, enter the *Commission Unit → Calibrate Sensors → Circuit #1/2* menu and then compare the *Evap Pressure* value with that detected by sample transducer. If the pressure value measured by the unit transducer is different from the sample one, set the difference in the *Evp Pr Offset* parameter.

Sample transducer is the measuring device has been calibrated and it must be very accurate.

If this difference is greater than ± 20 kPa replace the transducer and repeat the operation.

After every charge step, wait 5 minutes after the liquid temperature stabilizing before to proceed with the next eventual adjustment step.

Evaporator pressure transducer is the most crucial of chiller's transducer as will guarantee the correct working of the EXV with consequent safe compressor running and since all low-pressure safeties are based on its readings.

8.1.1.2 Condenser Pressure

- Connect the transducer to the "T shape" pressure port on which the discharge pressure transducer is installed.
- With the unit on, enter in *Commission Unit* → *Calibrate Sensors* → *Circuit #1/2* menu and then compare the *Cond Pressure* value with the one detected by the sample transducer. If the value of the pressure measured by the unit transducer is different from the sample one, set the difference in the *Cond Pr Offset* parameter.

If this difference is greater than ± 90 kPa replace the transducer and repeat the operation.

8.1.2 Subcooling measurement point

The calculation of the subcooling at the filter dryer (in addition to the visual inspection of any flash gas on the liquid sight glass) is the main parameter by which the need for a charge adjustment is established. This quantity must be quantified with the least possible margin of error.

What's needed:

- Additional pressure transducer
- Additional temperature sensor

Proceed to the installation as follows:

- The pressure sensor must be installed on the two pressure point before the EXV, after the filter dryer.
- The temperature sensor must be installed on a smooth pipe section (not on a weld, for example), as close as possible to the pressure sensor mentioned above.

Temperature measurements are among the most difficult to perform. Install the temperature probes with a correct quantity of thermal paste, tighten the probes firmly to the pipe and abundantly insulate the probes so that external agents cannot affect the measurement.

The optiomal refrigerant charge depends by the unit configuration. Is possible identify the right refrigerant charghe while the unit is working through the following conditions:

- For Standard units and heat reclaim units
  - Subcooling (at the dryer filter) = 5 ± 0,5°C

If the Subcooling value is out of range, then proceed with the charge adjustment by using the recovery pump connected on the condenser outlet (before filter dryier).

The charge adjustment has to be performed step-by-step, adding or removing 200g of refrigerant per time.

8.2 Running Safeties Test

8.2.1 Flow Switches

With the running unit, disable the water pumps and check if "Water Flow Loss" alarm appears after 30sec.
If not, check proceed with the check of correct flow switch installation and calibration.

8.3 Data acquisition

Make sure that the circuit is working in stable conditions in order to don't affect the Data Acquisition

INFORMATION
If start-up in chiller mode is carried out as second test, calibrate the EWLT offset in *Commission Unit* → *Sensors Calibration* →*Unit* before to run the unit

- Data acquisition must be performed according the ***Data Acquisition*** section of the Commissioning Sheet.
- Data acquisition must be separately performed for each circuit in Chiller and Heat Pump mode.
  To select the circuit working mode refer to the following setting:

  Start in Cool Mode:

  Main Menu → Unit Mode → Heat/Cool
  QHP Switch→Chiller (Cool)

  Enable this setpoint for testing the unit in Mechanical mode and through Unit Enable to select which Circuit to test.
- It is recommended to let the circuit reach the 100% of capacity before to proceed with the data acquisition (according to the plant load conditions).
  To evaluate the stable operation of the unit check, following conditions must be satisfied:
  - Circuit Status equal to "Run=Normal"
  - ELWT and/or CLWT is as near as possible to the relative setpoint
  - EXV is working in Superheat mode:
    - Main Menu → View/Set Circuit →Circuit# → EXV → State = SSH
  - SSH is equal to the SSH target for 5 minutes continuously:
    - Main Menu → View/Set Circuit →Circuit# → EXV → SSH Target

Repeat in Heat Mode:

INFORMATION
If start-up in chiller mode is carried out as second test, calibrate the *CWLT offset in Commission Unit → Sensors Calibration → Unit* before to run the unit

Main Menu → Unit Mode → Heat/Cool
QHP Switch→Local (Heat)

Enable this setpoint for testing the unit in Mechanical mode and through Unit Enable to select which Circuit to test.

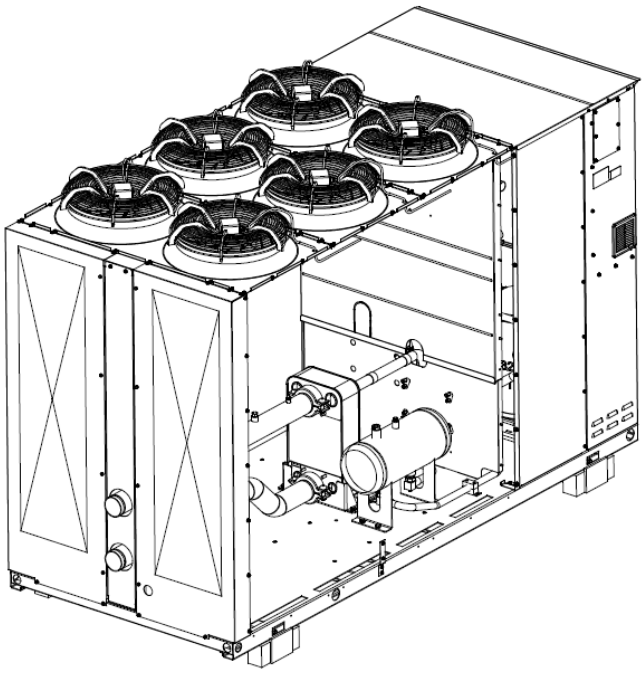
- It is recommended to let the circuit reach the 100% of capacity before to proceed with the data acquisition (according to the plant load conditions).
- Check Subcooling in Heating mode (pressure port and temperature sensor before EXV, after liquid receiver) that should be between 1 and 3K.
  To evaluate the stable operation of the unit check, following conditions must be satisfied:
  - Circuit Status equal to "Run=Normal"
  - ELWT and/or CLWT is as near as possible to the relative setpoint
  - EXV is working in Superheat mode:
    - Main Menu → View/Set Circuit →Circuit# → EXV → State = SSH
  - SSH is equal to the SSH target for 5 minutes continuously:
    - Main Menu → View/Set Circuit →Circuit# → EXV → SSH Target

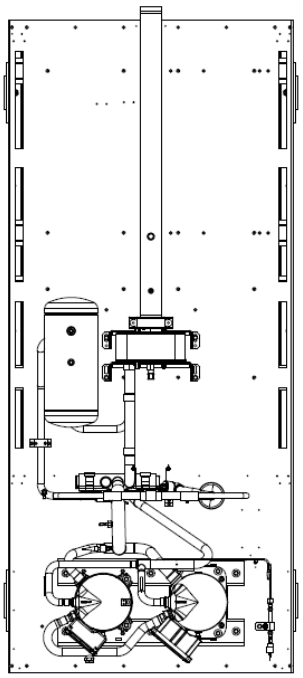
CLIMATIX Scope Light data recording during commissioning is strongly suggested.
For all material required for the recording get in contact with servicesupport@daikinapplied.eu

9 TABLES

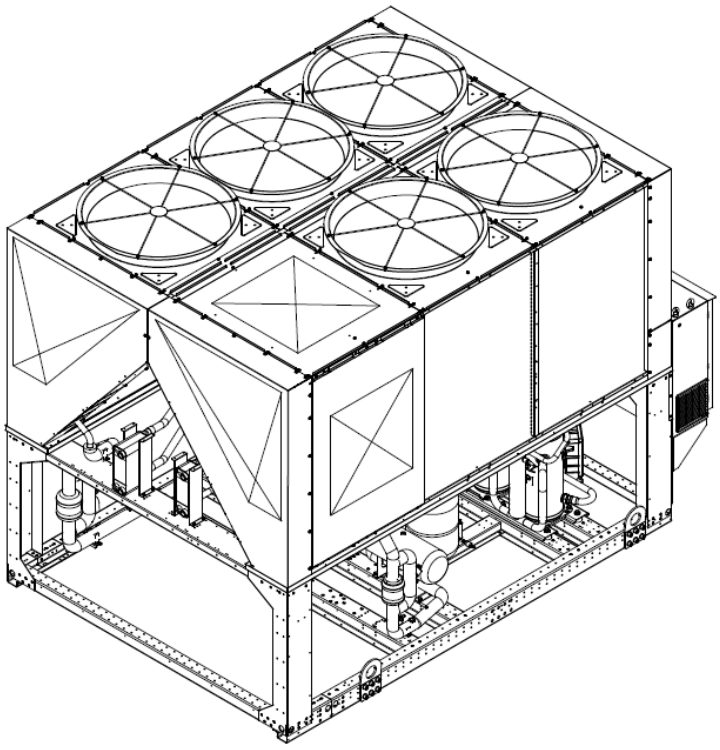
9.1 Table A – Unit Layout

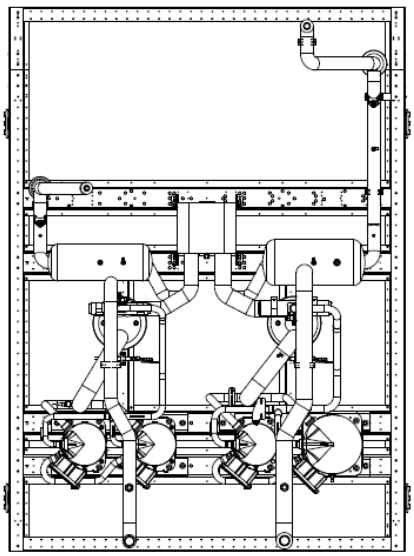
9.1.1 Parallel Coil Layout





9.1.2 W Coil Layout





9.2 Table B – Fan settings

EWYT085B-(X/S)(S/R/L)AX → EWYT265B-(X/S)(S/R/L)AX			
Efficiency and noise class	Fan Regulation	Fan Speed	Volts (VFD regulation)
SS	VFD	1360	10
SL	VFD	1360	10
SR	VFD	1200	8.8
XS	VFD	1200	8.8
XL	VFD	1200	8.8
XR	VFD	1108	8

EWYT300B-(X/S)(S/R/L)AX → EWYT650B-(X/S)(S/R/L)AX				
	Efficiency and noise class	Fan Regulation	Fan Speed	Volts (VFD regulation)
	SS	Step	900	-
	SL	Step	900	-
	SR	VFD	780	8.5
	XS	Step	700	-
	XL	Step	700	-
	XR	VFD	600	6.5
EWYT 650	XS-XL	Step	900	-
	XR	VFD	780	8.5

9.3 Unit Composition

All the EWYT-B with "R" (reduced) noise class are provided with VFD fan

9.3.1 EWYTxxxB-SxAx ("S" Efficiency)

Size	Fan C1	Fan C2	Comp 1	Comp 3	Comp 5	Comp 2	Comp 4	Comp 6	Fan Control
EWYT085B-SSA1	4		15 hp	15 hp					VFD
EWYT105B-SSA1	6		15 hp	25 hp					VFD
EWYT135B-SSA1	8		25 hp	25 hp					VFD
EWYT175B-SSA1	8		25 hp	40 hp					VFD
EWYT215B-SSA1	10		40 hp	40 hp					VFD
EWYT205B-SSA2	10		15 hp	15 hp		15 hp	15 hp		VFD
EWYT235B-SSA2	12		15 hp	15 hp		15 hp	25 hp		VFD
EWYT255B-SSA2	12		15 hp	25 hp		15 hp	25 hp		VFD
EWYT310B-SSA2	2	3	25 hp	25 hp		25 hp	40 hp		Step
EWYT350B-SSA2	3	3	25 hp	40 hp		25 hp	40 hp		Step
EWYT380B-SSA2	4	4	25 hp	40 hp		40 hp	40 hp		Step
EWYT430B-SSA2	4	4	40 hp	40 hp		40 hp	40 hp		Step
EWYT490B-SSA2	4	4	40 hp	40 hp		40 hp	25 hp	40 hp	Step
EWYT540B-SSA2	4	4	40 hp	25 hp	40 hp	40 hp	25 hp	40 hp	Step
EWYT590B-SSA2	5	5	40 hp	25 hp	40 hp	40 hp	40 hp	40 hp	Step
EWYT630B-SSA2	5	5	40 hp	40 hp	40 hp	40 hp	40 hp	40 hp	Step

9.3.2 EWYTxxxB-XxAx ("X" efficiency)

Size	Fan C1	Fan C2	Comp 1	Comp 3	Comp 5	Comp 2	Comp 4	Comp 6	Fan Control
EWYT085B-XSA1	6		15 hp	15 hp					VFD
EWYT115B-XSA1	8		25 hp	15 hp					VFD
EWYT135B-XSA1	8		25 hp	25 hp					VFD
EWYT175B-XSA1	10		40 hp	25 hp					VFD
EWYT215B-XSA1	12		40 hp	40 hp					VFD
EWYT215B-XSA2	14		15 hp	15 hp		15 hp	15 hp		VFD
EWYT235B-XSA2	16		15 hp	15 hp		25 hp	15 hp		VFD
EWYT265B-XSA2	16		25 hp	15 hp		25 hp	15 hp		VFD
EWYT310B-XSA2	3	4	25 hp	25 hp		25 hp	40 hp		Step
EWYT350B-XSA2	4	4	25 hp	40 hp		25 hp	40 hp		Step
EWYT400B-XSA2	5	5	25 hp	40 hp		40 hp	40 hp		Step
EWYT440B-XSA2	5	5	40 hp	40 hp		40 hp	40 hp		Step
EWYT500B-XSA2	6	6	40 hp	40 hp		40 hp	25 hp	40 hp	Step
EWYT560B-XSA2	6	6	40 hp	25 hp	40 hp	40 hp	25 hp	40 hp	Step
EWYT600B-XSA2	7	7	40 hp	25 hp	40 hp	40 hp	40 hp	40 hp	Step
EWYT630B-XSA2	7	7	40 hp	40 hp	40 hp	40 hp	40 hp	40 hp	Step
EWYT650B-XSA2	7	7	40 hp	40 hp	40 hp	40 hp	40 hp	40 hp	Step

9.3.3 Performance Monitoring Tables

9.3.3.1 Fan Series HP R32 Table

		EWYT085B-S-A1	EWYT105B-S-A1	EWYT135B-S-A1	EWYT175B-S-A1	EWYT215B-S-A1
OP.99a (VFD FAN)	FAN SS - SL - SR	N/A	N/A	N/A	N/A	N/A
OP.08 (BRINE)	FAN SS - SL	Kemao Ø460 1360 rpm (Phase Cut)	Kemao Ø460 1360 rpm (Phase Cut)	Kemao Ø460 1360 rpm (Phase Cut)	Kemao Ø460 1360 rpm (Phase Cut)	Kemao Ø460 1360 rpm (Phase Cut)
	FAN SR	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)
OP.142A (KIT HA)	FAN SS - SL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN SR	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)
OP.160 (100 Pa)	FAN SS - SL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN SR	N/A	N/A	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN SS - SL - SR	N/A	N/A	N/A	N/A	N/A
OP.161 (200 Pa)	FAN SS - SL - SR	N/A	N/A	N/A	N/A	N/A

		EWYT205B-S-A2	EWYT235B-S-A2	EWYT255B-S-A2
OP.99a (VFD FAN)	FAN SS - SL - SR	N/A	N/A	N/A
OP.08 (BRINE)	FAN SS - SL	Kemao Ø460 1360 rpm (Phase Cut)	Kemao Ø460 1360 rpm (Phase Cut)	Kemao Ø460 1360 rpm (Phase Cut)
	FAN SR	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)
OP.142A (KIT HA)	FAN SS - SL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN SR	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)
OP.160 (100 Pa)	FAN SS - SL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN SR	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN SS - SL - SR	N/A	N/A	N/A
OP.161 (200 Pa)	FAN SS - SL - SR	N/A	N/A	N/A

		EWYT300B-S-A2	EWYT340B-S-A2	EWYT390B-S-A2	EWYT430B-S-A2
OP.99a (VFD FAN)	FAN SS - SL	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)
	FAN SR	STD Mounted	STD Mounted	STD Mounted	STD Mounted
OP.08 (BRINE)	FAN SS - SL	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)
	FAN SR	DAE Ø800 6P 780 rpm (VFD)	DAE Ø800 6P 780 rpm (VFD)	DAE Ø800 6P 780 rpm (VFD)	DAE Ø800 6P 780 rpm (VFD)
OP.142B/C (KIT HA)	FAN SS - SL	Kemao Ø850 965 rpm (ON-OFF)	Kemao Ø850 965 rpm (ON-OFF)	Kemao Ø850 965 rpm (ON-OFF)	Kemao Ø850 965 rpm (ON-OFF)
	FAN SR	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm
OP.160 (100 Pa)	FAN SS - SL - SR	N/A	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN SS - SL	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm
	FAN SR	N/A	N/A	N/A	N/A
OP.161 (200 Pa)	FAN SS - SL	EBMP EC A3G800AF0501 1430 rpm	EBMP EC A3G800AF0501 1430 rpm	EBMP EC A3G800AF0501 1430 rpm	EBMP EC A3G800AF0501 1430 rpm
	FAN SR	N/A	N/A	N/A	N/A

		EWYT490B-S-A2	EWYT540B-S-A2	EWYT590B-S-A2	EWYT630B-S-A2
OP.99a (VFD FAN)	FAN SS - SL	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)
	FAN SR	STD Mounted	STD Mounted	STD Mounted	STD Mounted
OP.08 (BRINE)	FAN SS - SL	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)
	FAN SR	DAE Ø800 6P 780 rpm (VFD)	DAE Ø800 6P 780 rpm (VFD)	DAE Ø800 6P 780 rpm (VFD)	DAE Ø800 6P 780 rpm (VFD)
OP.142B/C (KIT HA)	FAN SS - SL	Kemao Ø850 965 rpm (ON-OFF)	Kemao Ø850 965 rpm (ON-OFF)	Kemao Ø850 965 rpm (ON-OFF)	Kemao Ø850 965 rpm (ON-OFF)
	FAN SR	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm
OP.160 (100 Pa)	FAN SS - SL - SR	N/A	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN SS - SL	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm
	FAN SR	N/A	N/A	N/A	N/A

OP.161 (200 Pa)	FAN SS - SL	EBMP EC A3G800AF0501 1430 rpm	EBMP EC A3G800AF0501 1430 rpm	EBMP EC A3G800AF0501 1430 rpm	EBMP EC A3G800AF0501 1430 rpm
	FAN SR	N/A	N/A	N/A	N/A

		EWYT085B-X-A1	**EWYT115B-X-A1**	**EWYT135B-X-A1**	**EWYT175B-X-A1**	**EWYT215B-X-A1**
OP.99a (VFD FAN)	FAN XS - XL - XR	N/A	N/A	N/A	N/A	N/A
OP.08 (BRINE)	FAN XS - XL	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)
	FAN XR	Kemao Ø460 1108 rpm (Phase Cut)	Kemao Ø460 1108 rpm (Phase Cut)	Kemao Ø460 1108 rpm (Phase Cut)	Kemao Ø460 1108 rpm (Phase Cut)	Kemao Ø460 1108 rpm (Phase Cut)
OP.142A (KIT HA)	FAN XS - XL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN XR	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)
OP.160 (100 Pa)	FAN XS - XL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN XR	N/A	N/A	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN XS- XL - XR	N/A	N/A	N/A	N/A	N/A
OP.161 (200 Pa)	FAN XS - XL - XR	N/A	N/A	N/A	N/A	N/A

		EWYT215B-X-A2	EWYT235B-X-A2	EWYT265B-X-A2
OP.99a (VFD FAN)	FAN XS - XL - XR	N/A	N/A	N/A
OP.08 (BRINE)	FAN XS - XL	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)	Kemao Ø460 1200 rpm (Phase Cut)
	FAN XR	Kemao Ø460 1108 rpm (Phase Cut)	Kemao Ø460 1108 rpm (Phase Cut)	Kemao Ø460 1108 rpm (Phase Cut)
OP.142A (KIT HA)	FAN XS - XL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN XR	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)	Kemao Ø500 1150 rpm (Phase Cut)
OP.160 (100 Pa)	FAN XS - XL	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)	Kemao Ø500 1430 rpm (Phase Cut)
	FAN XR	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN XS- XL - XR	N/A	N/A	N/A
OP.161 (200 Pa)	FAN XS - XL - XR	N/A	N/A	N/A

		EWYT310B-X-A2	EWYT350B-X-A2	EWYT400B-X-A2	EWYT440B-X-A2
OP.99a (VFD FAN)	FAN XS - XL	DAE Ø800 6P 700 rpm (VFD)	DAE Ø800 6P 700 rpm (VFD)	DAE Ø800 6P 700 rpm (VFD)	DAE Ø800 6P 700 rpm (VFD)
	FAN XR	STD Mounted	STD Mounted	STD Mounted	STD Mounted
OP.08 (BRINE)	FAN XS - XL	DAE Ø800 8P 700 rpm (ON-OFF)	DAE Ø800 8P 700 rpm (ON-OFF)	DAE Ø800 8P 700 rpm (ON-OFF)	DAE Ø800 8P 700 rpm (ON-OFF)
	FAN XR	DAE Ø800 6P 600 rpm (VFD)	DAE Ø800 6P 600 rpm (VFD)	DAE Ø800 6P 600 rpm (VFD)	DAE Ø800 6P 600 rpm (VFD)
OP.142B/C (KIT HA)	FAN XS - XL	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)
	FAN XR	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm
OP.160 (100 Pa)	FAN XS - XL - XR	N/A	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN XS - XL	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)
	FAN XR	N/A	N/A	N/A	N/A
OP.161 (200 Pa)	FAN XS - XL	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm
	FAN XR	N/A	N/A	N/A	N/A

		EWYT500B-X-A2	EWYT560B-X-A2	EWYT600B-X-A2	EWYT630B-X-A2	EWYT650B-X-A2
OP.99a (VFD FAN)	FAN XS - XL	DAE Ø800 6P 700 rpm (VFD)	DAE Ø800 6P 700 rpm (VFD)	DAE Ø800 6P 700 rpm (VFD)	DAE Ø800 6P 700 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)
	FAN XR	STD Mounted	STD Mounted	STD Mounted	STD Mounted	STD Mounted
OP.08 (BRINE)	FAN XS - XL	DAE Ø800 8P 700 rpm (ON-OFF)	DAE Ø800 8P 700 rpm (ON-OFF)	DAE Ø800 8P 700 rpm (ON-OFF)	DAE Ø800 8P 700 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)
	FAN XR	DAE Ø800 6P 600 rpm (VFD)	DAE Ø800 6P 600 rpm (VFD)	DAE Ø800 6P 600 rpm (VFD)	DAE Ø800 6P 600 rpm (VFD)	DAE Ø800 6P 780 rpm (VFD)
OP.142B/C (KIT HA)	FAN XS - XL	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	DAE Ø800 6P 900 rpm (ON-OFF)	Kemao Ø850 950 rpm (ON-OFF)
	FAN XR	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm	KEMAO ODS800C BRS 1050 rpm
OP.160 (100 Pa)	FAN XS - XL - XR	N/A	N/A	N/A	N/A	N/A
OP.160B/C (100 Pa + VFD)	FAN XS - XL	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	DAE Ø800 6P 900 rpm (VFD)	EBMP A3G800AU2103 1100 rpm
	FAN XR	N/A	N/A	N/A	N/A	N/A
OP.161 (200 Pa)	FAN XS - XL	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP A3G800AU2103 1100 rpm	EBMP EC A3G800AF0501 1430 rpm
	FAN XR	N/A	N/A	N/A	N/A	N/A

9.3.3.2 Pump Models HP Series R32 Table

	Model	Single Pump Low Lift	PI (kW)	Single Pump High Lift	PI (kW)	Double Pump Low Lift	PI (kW)	Double Pump High Lift	PI (kW)
SILVER DUAL	EWYT430B-SSA2	LNEE80-160/75	7.5	LNEE80-160/150	15	LNTE80-160/75	7.5	LNTE80-160/110	11
	EWYT490B-SSA2	LNEE80-160/75	7.5	LNEE80-160/150	15	LNTE80-160/75	7.5	LNTE80-160/110	11
	EWYT540B-SSA2	LNEE80-160/92	9.2	LNEE80-160/150	15	LNTE80-160/92	9.2	LNTE80-160/150	15
	EWYT590B-SSA2	LNEE80-160/92	9.2	LNEE80-160/150	15	LNTE80-160/92	9.2	LNTE80-160/150	15
	EWYT630B-SSA2	LNEE80-160/110	11	LNEE80-160/150	15	LNTE80-160/110	11	LNTE80-160/150	15

	Model	Single Pump Low Lift	PI (kW)	Single Pump High Lift	PI (kW)	Double Pump Low Lift	PI (kW)	Double Pump High Lift	PI (kW)
GOLD DUAL	EWYT400B-XSA2	LNEE65-125/75	7.5	LNEE80-160/92	9.2	LNTE65-125/55	5.5	LNTE80-160/92	9.2
	EWYT440B-XSA2	LNEE65-125/75	7.5	LNEE80-160/92	9.2	LNTE65-125/75	7.5	LNTE80-160/92	9.2
	EWYT500B-XSA2	LNEE80-160/75	7.5	LNEE80-160/110	11	LNTE65-125/75	7.5	LNTE80-160/110	11
	EWYT560B-XSA2	LNEE80-160/75	7.5	LNEE80-160/110	11	LNTE80-160/75	7.5	LNTE80-160/110	11
	EWYT600B-XSA2	LNEE80-160/75	7.5	LNEE80-160/150	15	LNTE80-160/92	9.2	LNTE80-160/150	15
	EWYT630B-XSA2	LNEE80-160/92	9.2	LNEE80-160/150	15	LNTE80-160/92	9.2	LNTE80-160/150	15
	EWYT650B-XSA2	LNEE80-160/92	9.2	LNEE80-160/150	15	LNTE80-160/92	9.2	LNTE80-160/150	15

	Model	Single Pump Low Lift	PI (kW)	Single Pump High Lift	PI (kW)	Double Pump Low Lift	PI (kW)	Double Pump High Lift	PI (kW)
SILVER DUAL	EWYT205B-SSA2	LNEE50-125/30	3	LNEE80-160/92	9.2	LNTE50-125/30	3	LNTE65-125/75	7.5
	EWYT235B-SSA2	LNEE50-125/40	4	LNEE80-160/92	9.2	LNTE65-125/55	5.5	LNTE80-160/92	9.2
	EWYT255B-SSA2	LNEE50-125/40	4	LNEE80-160/92	9.2	LNTE65-125/55	5.5	LNTE80-160/92	9.2
	EWYT300B-SSA2	LNEE65-125/55	5.5	LNEE80-160/110	11	LNTE65-125/55	5.5	LNTE80-160/110	11
	EWYT340B-SSA2	LNEE65-125/55	5.5	LNEE80-160/92	9.2	LNTE65-125/55	5.5	LNTE80-160/92	9.2
	EWYT390B-SSA2	LNEE65-125/75	7.5	LNEE80-160/110	11	LNTE65-125/75	7.5	LNTE80-160/110	11

SILVER MONO	EWYT085B-SSA1	CIE370/2	1.5	CIE370/5	3	CIE370/2	1.5	CIE370/5	3
	EWYT105B-SSA1	CIE370/2	1.5	CIE370/5	3	CIE370/2	1.5	CIE370/5	3
	EWYT135B-SSA1	CIE370/3	2.2	NSC 40-125/40	4	CIE370/5	3	NSC 40-160/55	5.5
	EWYT175B-SSA1	CIE370/5	3	NSC 40-160/55	5.5	NSC 40-125/40	4	NSC 40-160/55	5.5
	EWYT215B-SSA1	NSC 40-125/40	4	NSC 40-160/55	5.5	NSC 40-125/40	4	NSC 40-160/55	5.5

	Model	Single Pump Low Lift	PI (kW)	Single Pump High Lift	PI (kW)	Double Pump Low Lift	PI (kW)	Double Pump High Lift	PI (kW)
GOLD DUAL	EWYT215B-XSA2	LNEE50-125/30	3	LNEE65-125/75	7.5	LNTE50-125/30	3	LNTE65-125/55	5.5
	EWYT235B-XSA2	LNEE50-125/30	3	LNEE65-125/75	7.5	LNTE65-125/40	4	LNTE65-125/55	5.5
	EWYT265B-XSA2	LNEE50-125/40	4	LNEE65-125/75	7.5	LNTE65-125/40	4	LNTE65-125/75	7.5
	EWYT310B-XSA2	LNEE50-125/40	4	LNEE80-160/75	7.5	LNTE65-125/40	4	LNTE65-125/75	7.5
	EWYT350B-XSA2	LNEE65-125/55	5.5	LNEE80-160/92	9.2	LNTE65-125/55	5.5	LNTE80-160/92	9.2

GOLD MONO	EWYT085B-XSA1	CIE370/2	1.5	CIE370/5	3	CIE370/2	1.5	CIE370/5	3
	EWYT115B-XSA1	CIE370/2	1.5	CIE370/5	3	CIE370/2	1.5	CIE370/5	3
	EWYT135B-XSA1	CIE370/3	2.2	NSC 40-125/40	4	CIE370/3	2.2	NSC 40-160/55	5.5
	EWYT175B-XSA1	CIE370/5	3	NSC 40-125/40	4	CIE370/5	3	NSC 40-160/55	5.5
	EWYT215B-XSA1	NSC 40-125/40	4	NSC 40-160/55	5.5	NSC 40-125/40	4	NSC 40-160/55	5.5

9.3.3.3 Crossed reference Pump Model – Pump Type Table

PUMP MODEL	PUMP TYPE
NO	0
LNEE50-125/22	1
LNEE50-125/30	2
LNEE50-125/40	3
LNEE65-125/40	4
LNEE65-125/55	5
LNEE65-125/75	6
LNEE80-160/55	7
LNEE80-160/75	8
LNEE80-160/92	9
LNEE80-160/110	10
LNEE80-160/150	11
LNTE50-125/30	12
LNTE65-125/40	13
LNTE65-125/55	14
LNTE65-125/75	15
LNTE80-160/55	16
LNTE80-160/75	17
LNTE80-160/92	18
LNTE80-160/110	19
LNTE80-160/150	20
CIE370/1	21
CIE370/2	22
CIE370/3	23
CIE370/5	24
NSC 40-125/22	25
NSC 40-125/40	26
NSC 40-160/55	27

9.4 Table C – Pump inverter settings

Parametro	Descrizione	Settings	Default	NOTE	NOTE
0-03	Regional Settings	default	*[0] International*		
0-06	~~Grid~~ Type	**[12] 380-440V/50Hz**	*[12] 380-440V/50Hz*	*Verificare Tensione di alimentazione e frequenza su R.M.*	*Verify Input Voltage (V) and frequency in R.M.*
1-10	Motor Construction	default	*[0] Asynchron*		
1-20	Motor Power	default	*Size related*	*Verificare Targa Motore*	*Verify Motor Nameplate data*
1-22	Motor Voltage	**[400 V]**	*Size related*	*Verificare Targa Motore*	*Verify Motor Nameplate data*
1-23	Motor Frequency	**[50 Hz]**	*Size related*	*Verificare Targa Motore*	*Verify Motor Nameplate data*
1-24	Motor Nominal Current	default	*Size related*	*Verificare Targa Motore*	*Verify Motor Nameplate data*
1-25	Motor Nominal Speed	**See Motor Nameplate Data**	*Size related*	*Verificare Targa Motore*	*Verify Motor Nameplate data*
1-73	Flying Start	default	*[0] Disabled*		
3-02	Minimum Reference	**See notes**	*[0]*	*Impostare 50 Hz per testare l'unità - Con velocità comandata dal cliente (terminale 53 - 0-10V), impostare a 40Hz, dopo il collaudo.*	*Set 50 Hz to test the unit - With external reference speed (terminal 53 - 0-10V), it is factory set to 40 Hz, after the final test.*
3-03	Maximum Reference	**[50]**	*[50]*	*Come 1-23 a meno che non sia riportata su R.M. una velocità inferiore*	*Set as 1-23 unless a different custom speed is required*
3-41	Ramp 1 Ramp Up Time	**[10 s]**	*Size related*	*Tempo per arrivare a 1-23 frequency*	*Time to reach 1-23 frequency*
3-42	Ramp 1 Ramp Down Time	**[10 s]**	*Size related*	*Tempo per fermarsi da 1-23 frequency*	*Time to stop from 1-23 frequency*
4-12	Motor Speed Low Limit [Hz]	default	*[0 Hz]*		
4-14	Motor Speed High Limit [Hz]	default	*[65 Hz]*		
4-19	Max Output Frequency	**See notes**	*Size related*	*Impostare la frequenza di alimentazione elettrica indicata nella R.M.*	*Set the electric frequency indicated in R.M.*
5-40	Function Relay 1	*[9] Alarm*	*[0] No operation*		
5-40	Function Relay 2	*[6] Running / no*	*[1] Control ready*		
6-10	Terminal 53 Low Voltage	default	*[0.07 V]*		
6-11	Terminal 53 High Voltage	default	*[10 V]*		
6-12	Terminal 53 Low Current	default	*[4 mA]*		
6-13	Terminal 53 Low Voltage	default	*[20 mA]*		
6-19	Terminal 53 mode	default	*[1] Voltage mode*	*[0] commuta all'ingresso in corrente; [1] commuta all'ingresso in tensione*	*Current or voltage input mode [0] Current mode; [1] Voltage mode*

9.5 Table D Commissioning Sheet

CHILLER COMMISSIONING SHEET for EWYT-B

End user :	Date:
Site:	Model nr:
Distributor:	Serial nr:

	A PRE-POWER ON CHECK LIST	
A1	Any Shipping Damage?	
A2	Is chiller adequately level mounted?	
A3	Are minimum space requirements met?	
A4	Anti vibration pads installed?	
A5	Fully Leak Test performed?	
A6	Water piping system checked?	
A7	Water Flows checked?	
A8	Glycol type / percentage [Evap/Cond]	
A9	Are electrical connections correct?	
A10	Compressor model C1	
A11	Compressor serial C1	
A12	Compressor model C2	
A13	Compressor serial C2	
A14	Compressor model C3	
A15	Compressor model C3	
A16	Compressor model C4	
A17	Compressor serial C4	
A18	Compressor model C5	
A19	Compressor serial C5	
A20	Compressor model C6	
A21	Compressor serial C6	

	B PRE-START UP CHECK LIST							
B1	Flow Switch Check							
B2	Main Voltage L1-L2 [V]							
B3	Main Voltage L2-L3 [V]							
B4	Main Voltage L3-L1 [V]							
B5	Frequency [Hz]							
B6	Control Voltage Tx IN/OUT [V]	/		/				
B7	Control voltage AL1 [V]							
B8	Oil Heaters were on before start-up ?							
		Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	
B9	Check Heaters [A] (measure current)							
B6	Unit Software version							
B7	Unit Water Temp Set Point Cool/Heat [°C]							
B8	Unit settings checked ?							
B9	Circuit settings checked ?							
B10	Alarm Limits set							
B11	Evap Water Frz Alarm Setpoint [°C]							
B7	Dry Test performed ?							
B12	Can be the chiller put into operation?							

	C PRE-STARTUP COMMENTS

	F POST-STARTUP COMMENTS

	G DEFECTIVE ITEMS FOUND AT COMMISSIONING ?
1	Parts subject to ECHC?
2	Parts requested to be directly supplied by factory?
	Please mention under which conditions parts are directly requested to the factory (ie.

	H PRESENT DURING COMMISSIONING :	
	Name :	Company:
	Name :	Company:
	Name :	Company:
	Author:	Installer:
	Signature:	Signature:
	Title:	Title:

	D STARTUP CHECK LIST	
D1	Running adjustment performed (Calibration)	
D2	Safety tests performed ?	

	E DATA ACQUISITION											
	Operating mode:	Chiller										
	Percentage of Load:	100%						100%				
	Circuit:	C1						C2				
	Compressor	C1		C2		C3		C4		C5		C6
E1	ELECTRICAL SYSTEM											
E1.1	Comp running Amps L1 [A]											
E1.2	Comp running Amps L2 [A]											
E1.3	Comp running Amps L3 [A]											
E2	REFRIGERANT SYSTEM											
E2.1	Evaporator Pressure [kPa]											
E2.2	Condenser Pressure [kPa]											
E2.3	Suction Temperature [°C]											
E2.4	Discharge Temperature [°C]											
E2.5	Suction Superheat [°C]											
E2.6	Discharge Superheat [°C]											
E2.7	Subcooling at dryer filter[°C]											
E2.8	Evaporator Approach [°C]											
E2.9	Condenser Approach [°C]											
E2.10	Oil Pressure [kPa]											
E2.11	Oil Pressure Differential [kPa]											
E2.12	EXV Position [%]											
E2.13	Fans [%]											
E3	EVAPORATOR (WATER)											
E3.1	Entering Water Temperature [°C]											
E3.2	Leaving Water Temperature [°C]											
E3.3	Evaporator Pressure Drop [kPa]											
E3.4	Design Evaporator Pressure Drop [kPa]											
E3.5	Flow Rate [l/s]											
E3.6	Design Flow rate [l/s]											
E3.7	Check Flow Switch status											
	Operating mode:	Heat Pump										
	Percentage of Load:	100%						100%				
	Circuit:	C1						C2				
	Compressor	C1		C2		C3		C4		C5		C6
E4	ELECTRICAL SYSTEM											
E4.1	Comp running Amps L1 [A]											
E4.2	Comp running Amps L2 [A]											
E4.3	Comp running Amps L3 [A]											
E5	REFRIGERANT SYSTEM											
E5.1	Evaporator Pressure [kPa]											
E5.2	Condenser Pressure [kPa]											
E5.3	Suction Temperature [°C]											
E5.4	Discharge Temperature [°C]											
E5.5	Suction Superheat [°C]											
E5.6	Discharge Superheat [°C]											
E5.7	Subcooling at dryer filter[°C]											
E5.8	Evaporator Approach [°C]											
E5.9	Condenser Approach [°C]											
E5.10	Oil Pressure [kPa]											
E5.11	Oil Pressure Differential [kPa]											
E5.12	EXV Position [%]											
E5.13	Fans [%]											
E6	CONDENSER (WATER)											
E6.1	Entering Water Temperature [°C]											
E6.2	Leaving Water Temperature [°C]											
E6.3	Evaporator Pressure Drop [kPa]											
E6.4	Design Evaporator Pressure Drop [kPa]											
E6.5	Flow Rate [l/s]											
E6.6	Design Flow rate [l/s]											
E6.7	Check Flow Switch status											
E7	Coil (Air)											
E7.1	UNIT IN Air Temperature [°C]											

As Commissioning is a technical process performed - before the Chiller is put into definitive operation - by an "Authorised Engineer".
As Commissioning is done and is intended to achieve the following specific limited objectives:
- verify and document (via checklist) that the Chiller is installed according to the manufacturers installation manual and operation manual.
- configure the Chiller to a set of manufacturers defined parameters in order to secure the correct performance of the Chiller in the specific site related operating conditions.
Therefore the Commissioning process does not take away from or reduce the responsibility of the System Designers and/or Installers to provide a finished and fully functioning system.

9.6 Table E Pre-Commissioning Sheet

Pre-Commissioning Sheet

Job Name: _____

Unit Model No.(s): _____

Daikin Serial Unit No.: _____

	Yes	No	N/A
Chilled Water			
-Piping complete	❑	❑	❑
-Water System filled and vented	❑	❑	❑
-Pumps installed & operational (rotation checked)	❑	❑	❑
-Strainers installed and clean	❑	❑	❑
-Controls (3-way valves, bypass valves, etc.) operable	❑	❑	❑
-Flow switch installed.	❑	❑	❑
-Water system operated and flow balanced to meet unit design requirements	❑	❑	❑
-Proper glycol percentage for the application in accordance with Daikin specifications	❑	❑	❑
Condenser Water			
-Cooling tower flushed, filled and piping vented	❑	❑	❑
-Pumps installed & operational (rotation checked)	❑	❑	❑
-Strainers installed and clean	❑	❑	❑
-Controls (3-way valves, bypass valves, etc.) operable	❑	❑	❑
-Water system operated and flow balanced to meet unit design requirements	❑	❑	❑
-Proper glycol percentage for the application in accordance with Daikin specifications	❑	❑	❑
Electrical			
-Power leads connected to unit main terminal block	❑	❑	❑
-Power leads have been checked for proper electrical phasing U-V-W for L1, L2, & L3 respectively.	❑	❑	❑
-All interlock wiring complete and complies with Daikin specifications	❑	❑	❑
-Pump starter and interlocks wired	❑	❑	❑
-Cooling tower fans and controls wired	❑	❑	❑
-Wiring complies with National Electrical Code and local codes	❑	❑	❑
Miscellaneous			
-Unit installed in accordance with Daikin IOM specifications (leveling, space requirements, …)	❑	❑	❑
-Thermometer wells, thermometers, gauges, control wells, controls, etc., installed	❑	❑	❑
-A minimum system load of 60% of machine capacity is available for testing and adjusting controls	❑	❑	❑

Warning: Under no condition should these units be started prior to the authorized start-up by Daikin Applied. Failure to follow this warning may result in serious equipment damage and will negate the warranty.

All installation work has been completed as checked above; the system has been inspected and the unit is ready for start-up

Site Engineer

Name: _____

Date: _____

Signature: _____