Domestic Hot Water Production With Heat Pumps

Quick Selection Systems' Quide

October 2019

Purpose of the manual

The purpose of this manual is to present to AHI CARRIER SE Europe SA's partners typical applications and sizing for DHW production for small hotels for the 3 major cities in MONTENEGRO:

- Tivat
- Podgorica (Golubovci)
- Prevlja

We hope this will be used as an easy by our partners reducing time spent in planning proposals.

It should be noted that the material included (drawings, configurations, peripherals) **is generic and does not constitute final structural components.** Before commencing any application, please get in touch with your engineer at AHI CARRIER SEE. in order to customize it to the specific characteristics, where appropriate. The final selection and correctness of the installation are the responsibility of the installer.

Assumptions

The calculations and the sizing of this guide have been based on the following assumptions:

1. Total maximum hot water consumption **50 lt per person**. Additionally hot water consumptions have not been considered (Kitchen, laundries etc.)
2. DHW storage tanks' volume **100 lt per room**
3. Maximum daily operating time for the heat pump **7 hours**
4. Maximum reheat time for the 70% of the storage volume **4 hours**
5. DHW storage temperature inside tanks **55°C.**
6. **Recirculation network** has not been considered in calculations.
7. **Anti-freeze solution** for piping network has not been considered. The below tables must be advised and the appropriate solution must be added according to jobsite minimum ambient temperature. Heating capacities and pipe friction must also be adjusted according to glycol percentage.

Glycol %		10%	20%	30%	40%	50%
Ethylene Glycol	Cooling / Heating Capacity	0.991	0.982	0.972	0.961	0.946
	Flow Rate (*)	1.004	1.021	1.044	1.077	1.114
	Pressure Drop (*)	1.051	1.089	1.116	1.166	1.171
Propylene Glycol	Cooling / Heating Capacity	0.985	0.964	0.932	0.889	0.846
	Flow Rate (*)	1.002	0.995	0.984	0.971	0.964
	Pressure Drop (*)	1.087	1.182	1.299	1.416	1.523
(*) Adjustments for new cooling / heating capacity are considered						

Note: FP = Freezing Point		BP = Burst Point		
Vol %	Propylene Glycol		Ethylene Glycol	
	FP (°C)	BP (°C)	FP (°C)	BP (°C)
5	-1.7	-2.8	-1.7	-2.8
10	-3.4	-5.6	-3.4	-5.0
15	-5.0	-7.8	-5.6	-8.4
20	-7.3	-11.7	-8.9	-13.4
25	-10.0	-18.4	-12.3	-18.9
30	-13.4	-27.8	-15.6	-25.6
35	-17.3	-43.4	-19.5	-42.8
40	-22.3	-51.2	-31.2	-51.2
45	-27.8	< -51.2	-37.8	< -51.2
50	-35.0	< -51.2	-45.6	< -51.2

Weather Data

Calculations have been based to the following meteo data for each city:

PLEVLJA

Month	Dry Bulb Temp °C			Dry Bulb Temp °C			Average
	Min	Max	Aver	Min	Max	Aver	Water °C
Jan	-10.1	17.9	0.5	-10.8	10.1	-0.7	6.4
Feb	-20.7	12.3	-1.5	-20.9	6.2	-2.9	4.5
Mar	-11.2	20.1	4.5	-11.4	12.1	2.1	4.5
Apr	-3.4	24.2	8.1	-3.4	14.8	5.3	4.5
May	-0.2	30.9	13.4	-0.5	17.7	9.8	4.5
June	1.6	31.3	16.2	1.6	20.9	12.6	5.6
July	6.9	32.8	18.8	6.7	19.7	14.7	11.3
Aug	4.3	32.7	17.7	4.3	21.1	14.3	16.8
Sep	-1.3	30.0	14.2	-1.5	19.5	11.4	20.2
Oct	-4.6	22.9	9.8	-4.7	17.0	7.8	20.4
Nov	-6.8	21.2	5.6	-7.1	13.3	3.8	17.6
Dec	-15.6	12.9	-0.9	-15.9	8.5	-2.1	12.5

PODGORICA (GOLUBOVCI)

Month	Dry Bulb Temp °C			Dry Bulb Temp °C			Average
	Min	Max	Aver	Min	Max	Aver	Water °C
Jan	-6.5	16.7	5.9	-7.3	11.6	3.9	12.7
Feb	-5.2	17.5	6.5	-8.5	13.2	4.0	7.8
Mar	-1.7	23.6	9.8	-3.5	14.5	7.0	4.9
Apr	2.0	25.0	13.3	0.0	16.0	10.2	4.6
May	9.8	30.2	19.4	8.1	22.0	14.8	6.9
June	11.1	35.8	22.8	7.9	26.1	17.2	11.7
July	15.5	37.4	26.5	11.3	23.1	18.3	17.4
Aug	11.6	36.0	24.9	9.9	24.0	18.5	22.5
Sep	12.0	34.0	21.1	9.9	22.3	16.1	25.6
Oct	7.6	28.7	16.3	5.1	22.4	13.4	25.9
Nov	-2.6	19.6	9.4	-4.0	16.5	7.5	23.3
Dec	-4.3	15.6	5.5	-4.8	12.8	3.9	18.5

TIVAT

Month	Dry Bulb Temp °C			Dry Bulb Temp °C			Average
	Min	Max	Aver	Min	Max	Aver	Water °C
Jan	-7.0	19.0	7.3	-7.3	12.9	5.4	13.0
Feb	-3.1	16.4	7.9	-4.0	12.4	5.3	8.3
Mar	-2.4	22.2	9.7	-3.1	14.8	7.6	5.4
Apr	2.0	24.0	13.8	1.8	16.1	10.8	5.0
May	6.0	31.1	18.8	5.2	20.2	14.3	7.5
June	7.0	34.6	22.4	5.5	23.8	18.1	12.1
July	15.6	34.2	25.7	14.6	25.8	19.9	17.6
Aug	13.6	37.0	24.6	11.8	28.0	19.6	22.6
Sep	10.0	30.0	20.0	9.3	22.5	15.8	25.6
Oct	2.0	27.0	15.1	1.5	20.9	12.5	25.8
Nov	0.8	21.0	11.4	0.4	18.4	10.1	23.3
Dec	-4.0	20.0	8.3	-4.6	14.0	6.1	18.7

- ✓ Design Month for whole year operating period: **February**
- ✓ Design Month for operating period from April to September: **April**

Notes

The manufacturer reserves the right to change specifications for the products that presented in the manual without previous notice. AHI CARRIER SEE is not responsible for printing mistakes and reserves the right to change data, calculations and drawings, without previous notice. The final selection and adjustment to the project's requirements are the responsibility of the installer.

Quick Selection Tables

CITY: PLEVLJA					
Operating Period	**Rooms**	**Beds**	**Suggested Heat Pump**	**Suggested DHW Storage Volume**	**Drawing ref.**
Whole Year	Up to 3	Up to 8	30AWH008HD	300 lt	**PL12a**
Whole Year	4-7	9-18	30AWH012HD	750 lt	**PL12b**
Whole Year	8	19-20	30AWH015HD9	750 lt	**PL12c**
Whole Year	9-13	21-33	61AF019P9	1500 lt (2 x 750 lt)	**PL12d**
7 months (Apr.- Sep.)	Up to 5	Up to 13	30AWH008HD	500 lt	**PL07a**
7 months (Apr.- Sep.)	6-11	14-28	30AWH012HD9	1000 lt	**PL07b**
7 months (Apr.- Sep.)	12-13	29-33	30AWH015HD9	1500 lt (2 x 750 lt)	**PL07c**
7 months (Apr.- Sep.)	14-18	34-45	61AF019P9	2000 lt (2 x 1000 lt)	**PL07d**

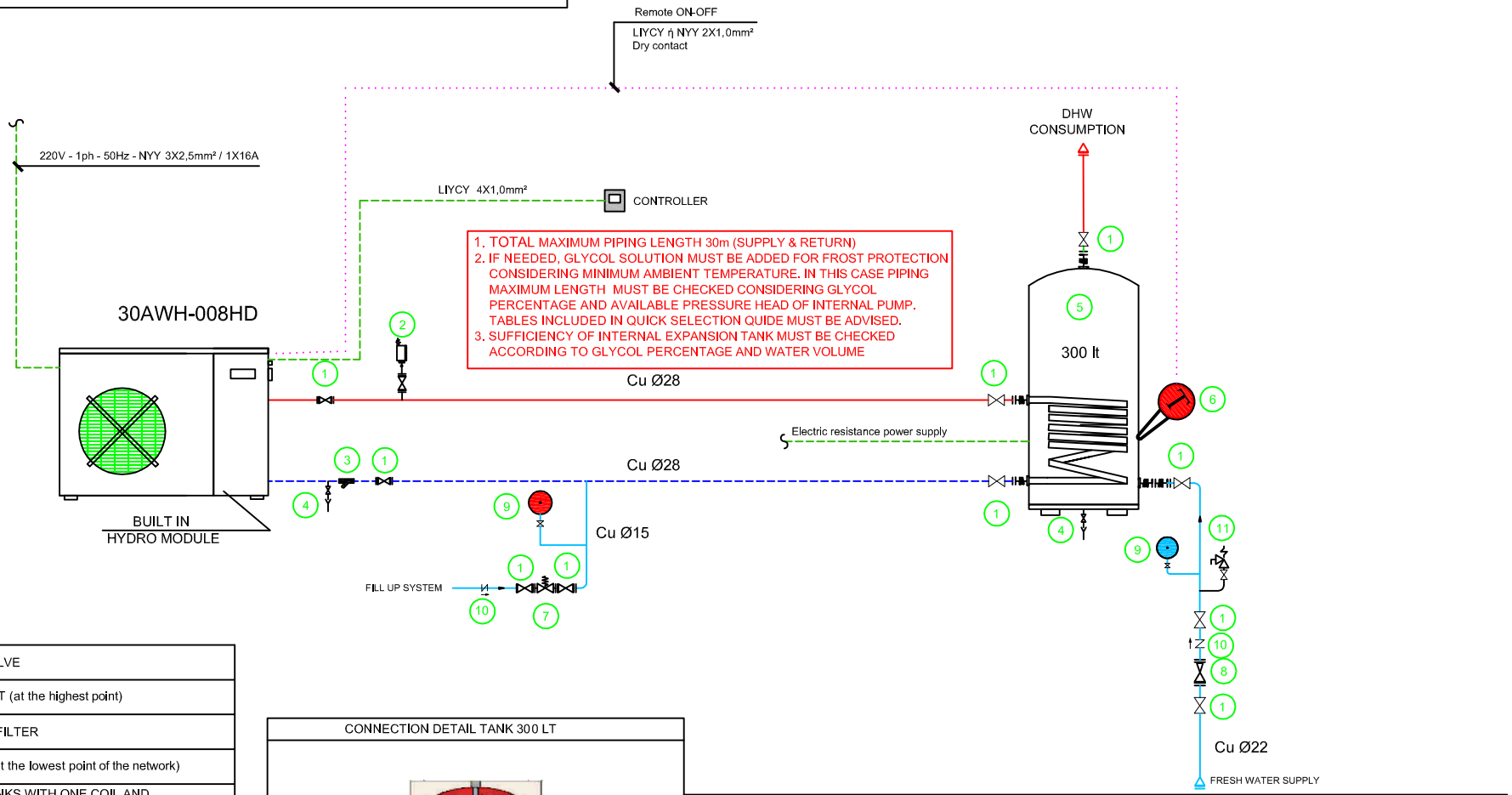
CITY: PODGORICA - GOLUBOVCI					
Operating Period	**Rooms**	**Beds**	**Suggested Heat Pump**	**Suggested DHW Storage Volume**	**Drawing ref.**
Whole Year	Up to 5	Up to 13	30AWH008HD	500 lt	**PO12a**
Whole Year	6-11	14-28	30AWH012HD9	1000 lt	**PO12b**
Whole Year	12-13	29-33	30AWH015HD9	1500 lt (2 x 750 lt)	**PO12c**
Whole Year	14-18	34-45	61AF019P9	2000 lt (2 x 1000 lt)	**PO12d**
7 months (Apr.- Sep.)	Up to 5	Up to 13	30AWH008HD	500 lt	**PO07a**
7 months (Apr.- Sep.)	6-12	14-30	30AWH012HD9	1000 lt	**PO07b**
7 months (Apr.- Sep.)	13-15	31-38	30AWH015HD9	1500 lt (2 x 750 lt)	**PO07c**
7 months (Apr.- Sep.)	16-20	39-50	61AF019P9	2000 lt (2 x 1000 lt)	**PO07d**

CITY: TIVAT					
Operating Period	**Rooms**	**Beds**	**Suggested Heat Pump**	**Suggested DHW Storage Volume**	**Drawing ref.**
Whole Year	Up to 5	Up to 13	30AWH008HD	500 lt	**TI12a**
Whole Year	6-11	14-28	30AWH012HD9	1000 lt	**TI12b**
Whole Year	12-14	29-35	30AWH015HD9	1500 lt (2 x 750 lt)	**TI12c**
Whole Year	15-18	36-45	61AF019P9	2000 lt (2 x 1000 lt)	**TI12d**
7 months (Apr.- Sep.)	Up to 5	Up to 13	30AWH008HD	500 lt	**TI07a**
7 months (Apr.- Sep.)	6-13	14-33	30AWH012HD9	1500 lt (2 x 750 lt)	**TI07b**
7 months (Apr.- Sep.)	14-15	34-38	30AWH015HD9	1500 lt (2 x 750 lt)	**TI07c**
7 months (Apr.- Sep.)	16-20	39-50	61AF019P9	2000 lt (2 x 1000 lt)	**TI07d**

SCHEMATIC DIAGRAMS

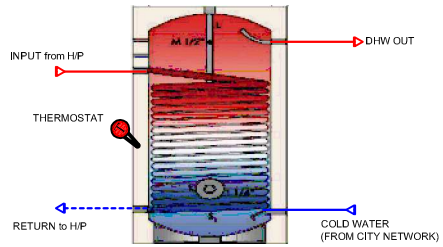
PLEVLJA - 12 months operating period

Up to 3 rooms (up to 8 beds) / 30AWH008HD



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 300 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This Is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PL12a

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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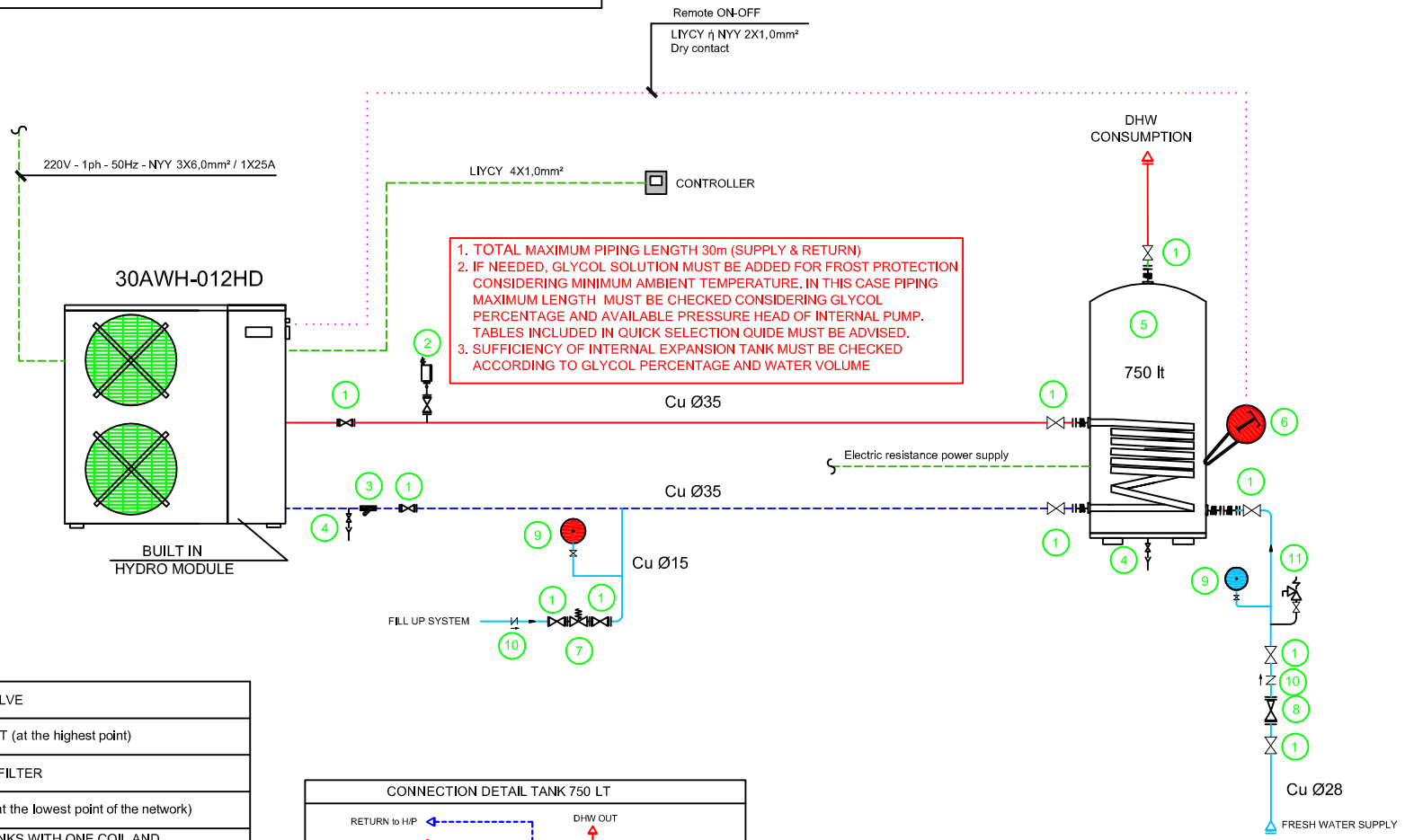
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

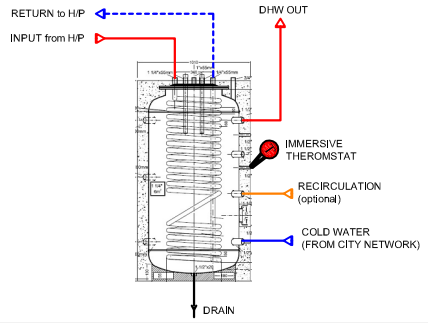
PLEVLJA - 12 months operating period

4 - 7 rooms (9 to 18 beds) / 30AWH012HD



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

DRAWING REFERENCE:

PL12b

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

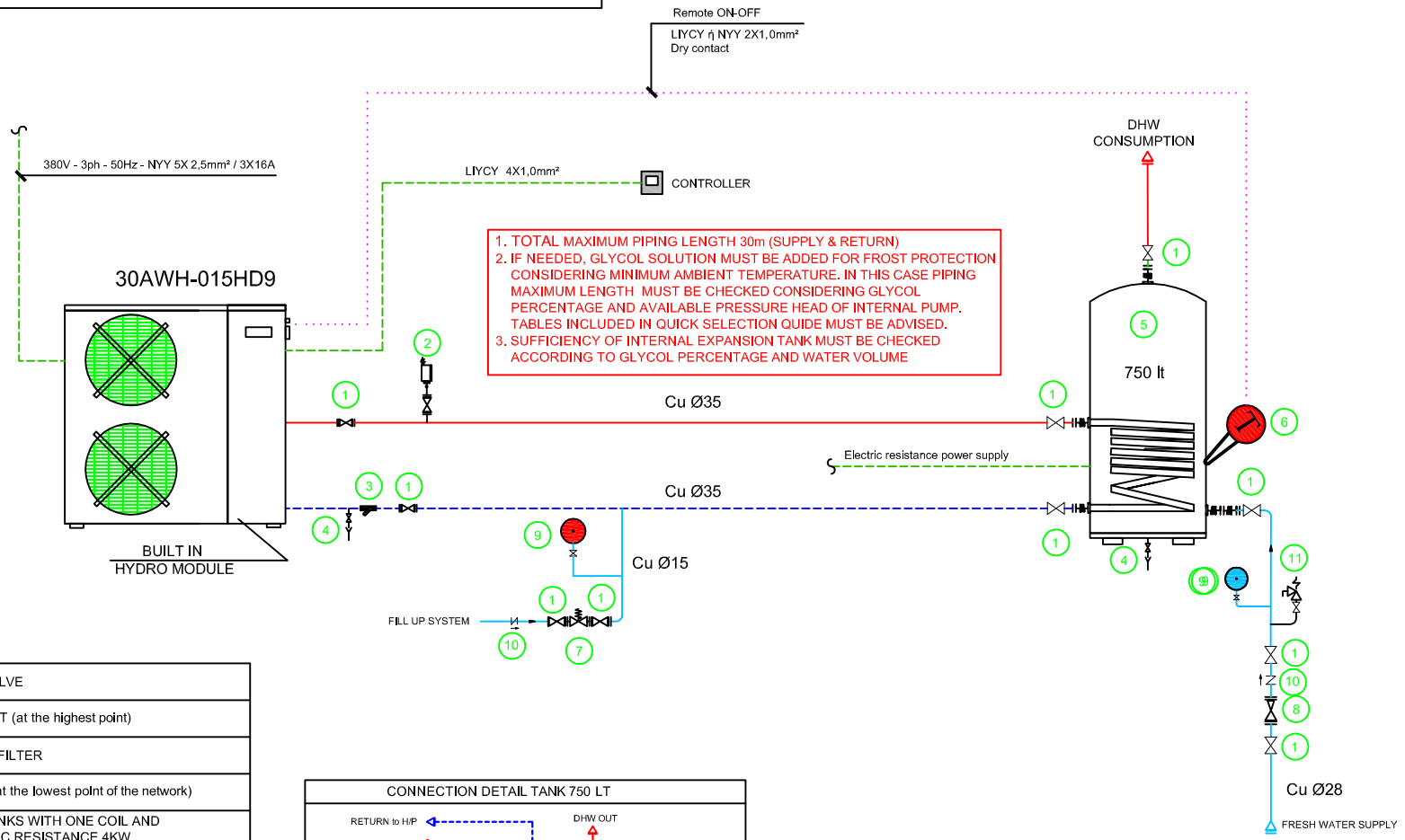
DATE: OCT 2019

REVISION:

CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

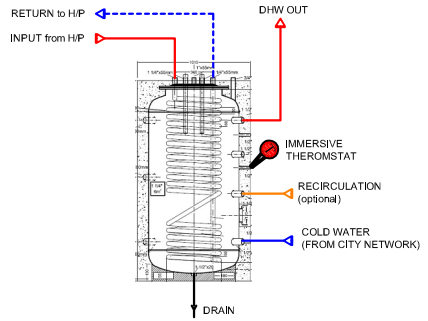
PLEVLJA - 12 months operating period

8 rooms (20 beds) / 30AWH015HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PL12c

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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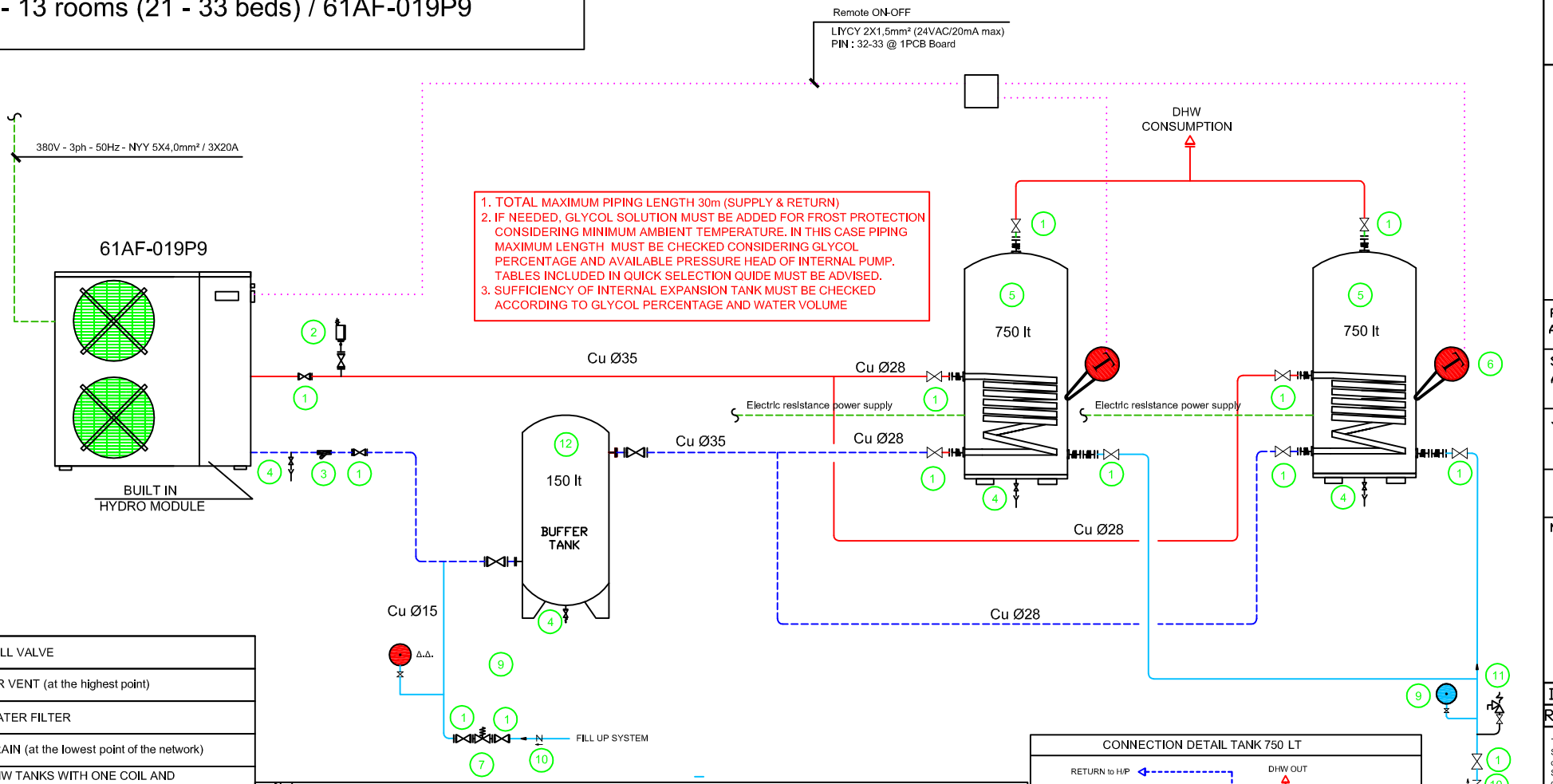
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

PLEVLJA - 12 months operating period

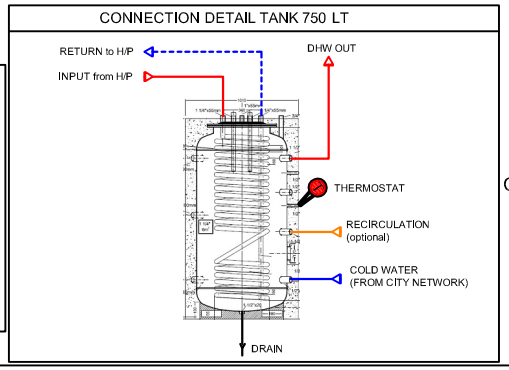
9 - 13 rooms (21 - 33 beds) / 61AF-019P9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
12	BUFFER TANK

Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.



AHI Carrier

DRAWING REFERENCE:

PL12d

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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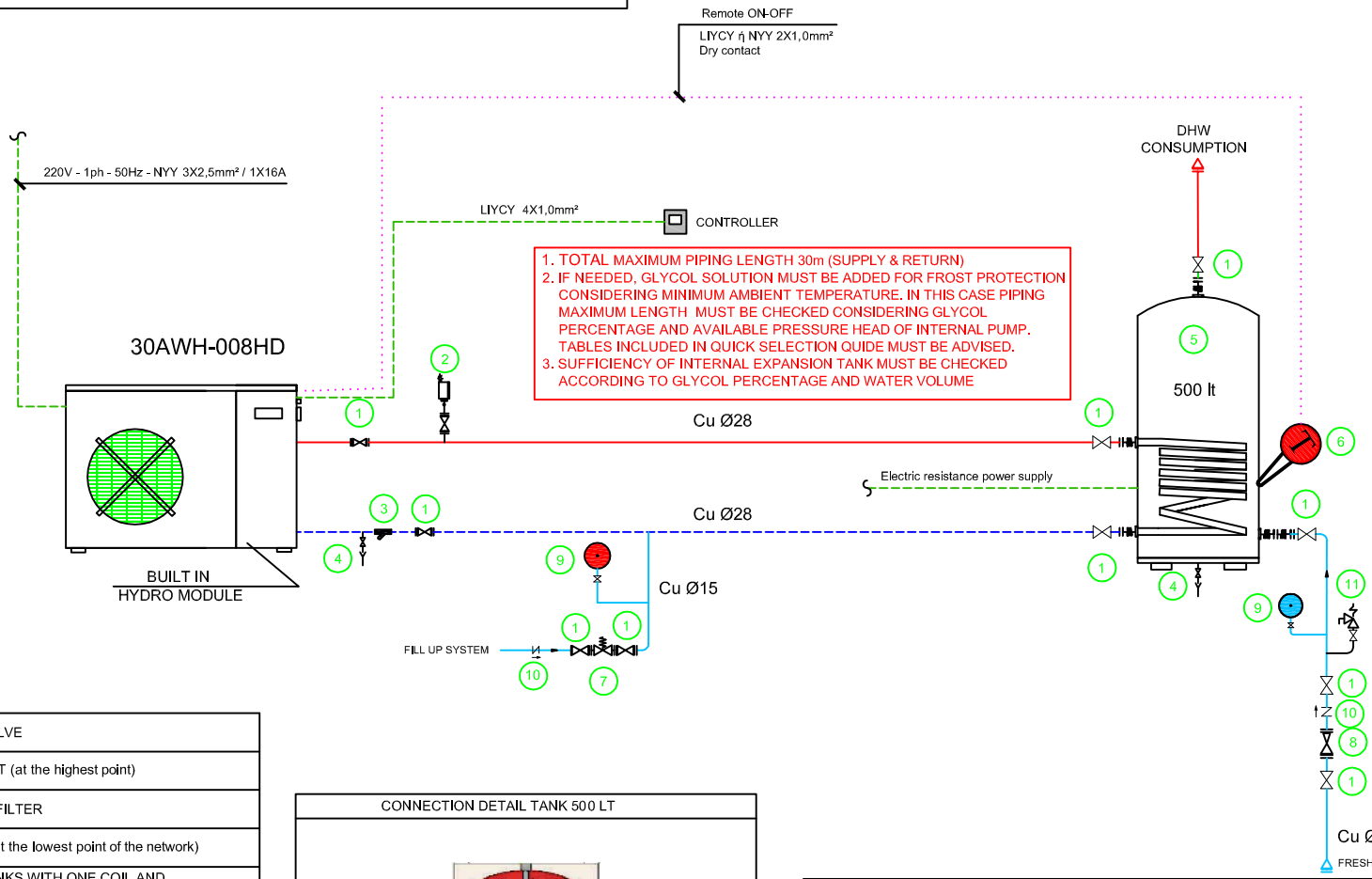
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

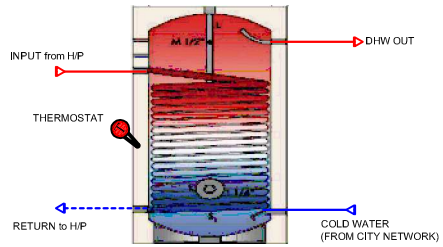
PLEVLJA - 7 months operating period

5 rooms (up to 13 beds) / 30AWH008HD



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 500 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PL07a

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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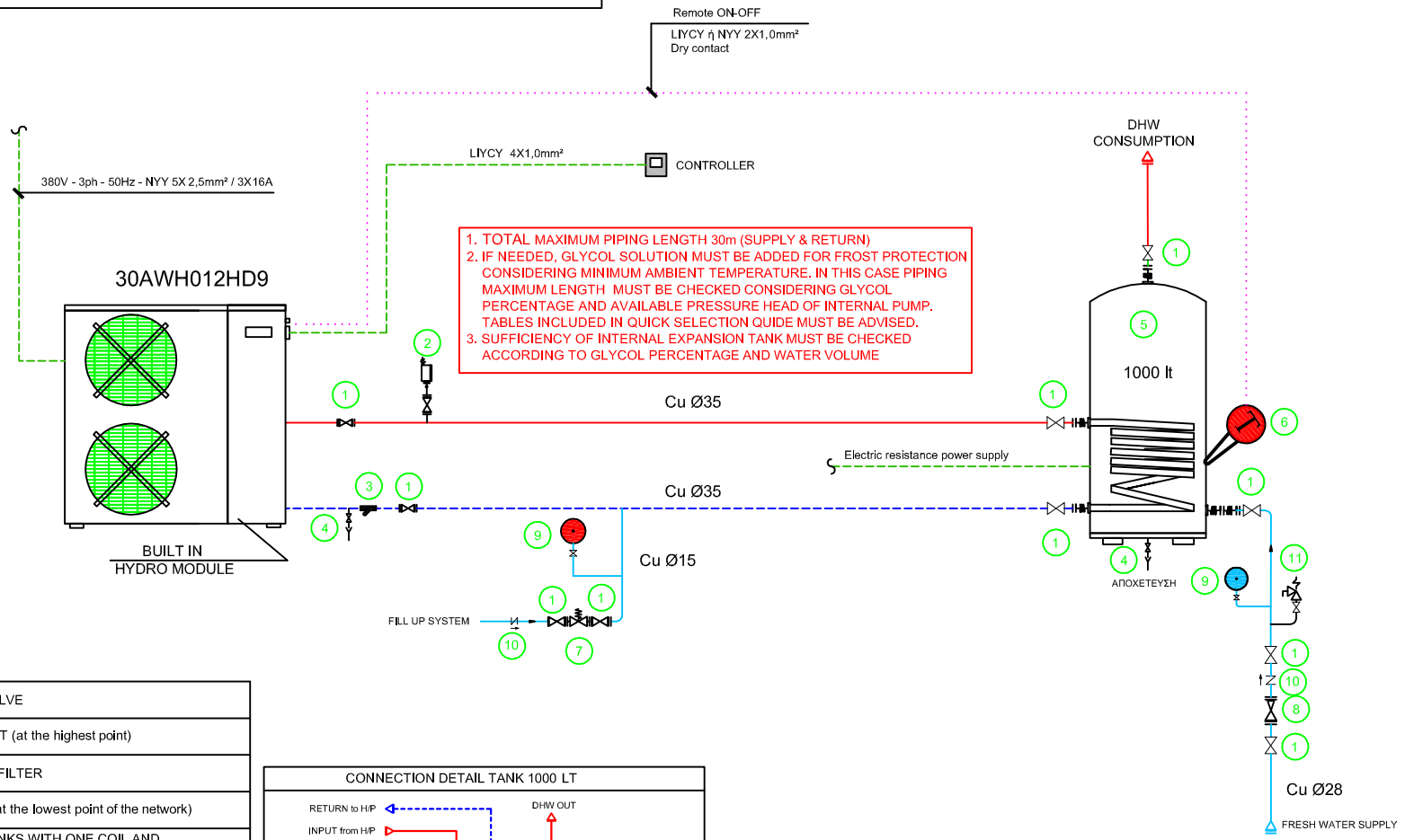
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

PLEVLJA - 7 months operating period

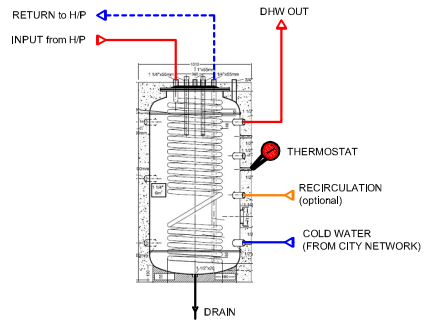
6 - 11 rooms (14 - 28 beds) / 30AWH012HD9



1. TOTAL MAXIMUM PIPING LENGTH 30m (SUPPLY & RETURN)
2. IF NEEDED, GLYCOL SOLUTION MUST BE ADDED FOR FROST PROTECTION CONSIDERING MINIMUM AMBIENT TEMPERATURE. IN THIS CASE PIPING MAXIMUM LENGTH MUST BE CHECKED CONSIDERING GLYCOL PERCENTAGE AND AVAILABLE PRESSURE HEAD OF INTERNAL PUMP. TABLES INCLUDED IN QUICK SELECTION QUIDE MUST BE ADVISED.
3. SUFFICIENCY OF INTERNAL EXPANSION TANK MUST BE CHECKED ACCORDING TO GLYCOL PERCENTAGE AND WATER VOLUME

1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 1000 LT



Notes:

1.The heat pump must not be disabled from the power supply,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqqulped wlth electrlcal heater (at least 4kw), for supplementary or back up heater, whenever wlll be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PL07b

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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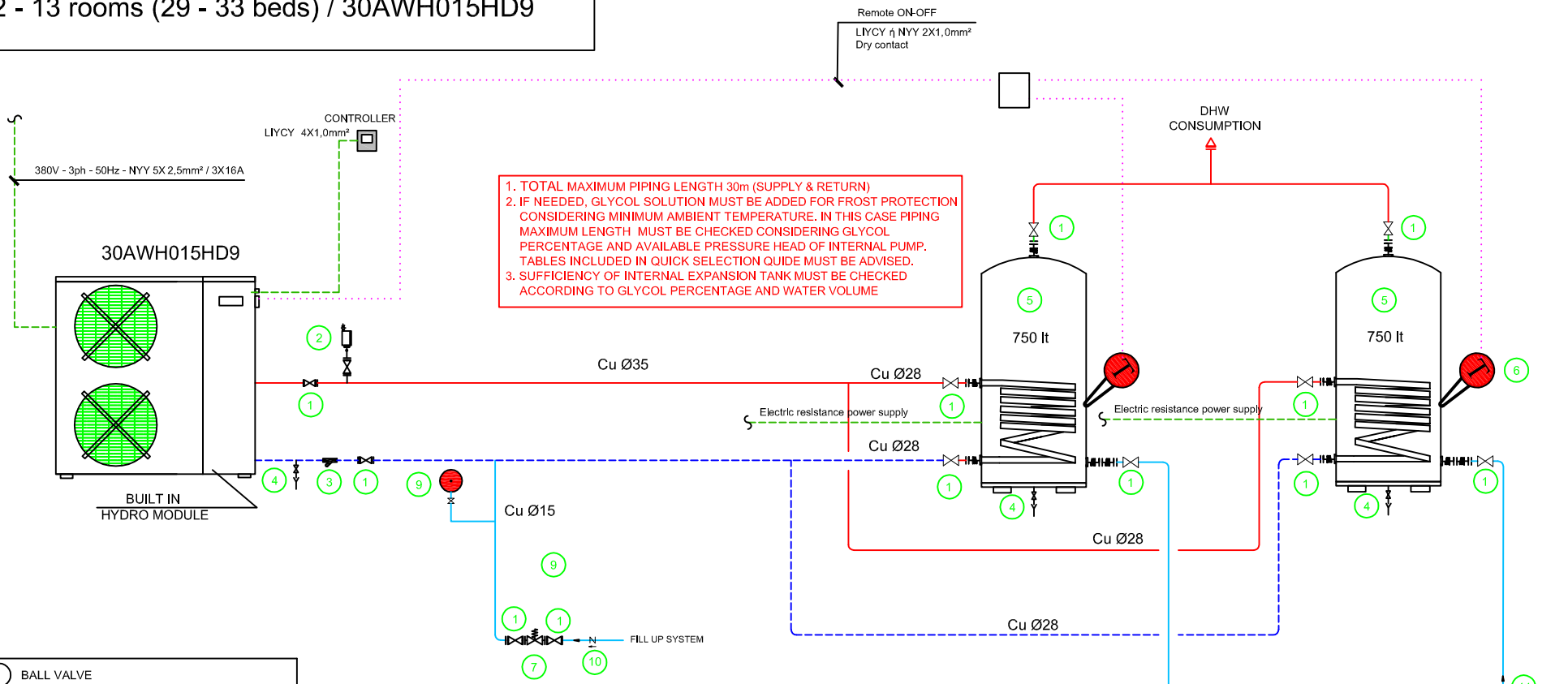
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

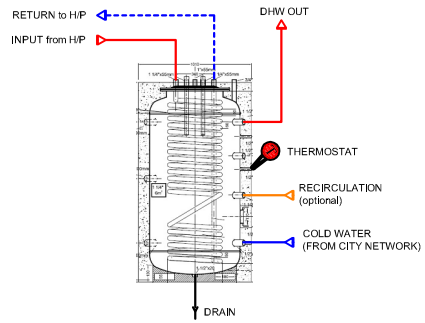
PLEVLJA - 7 months operating period

12 - 13 rooms (29 - 33 beds) / 30AWH015HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqqulped wlth electrlcal heater (at least 4kw), for supplementary or back up heater, whenever wlll be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PL07c

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019
REVISION:

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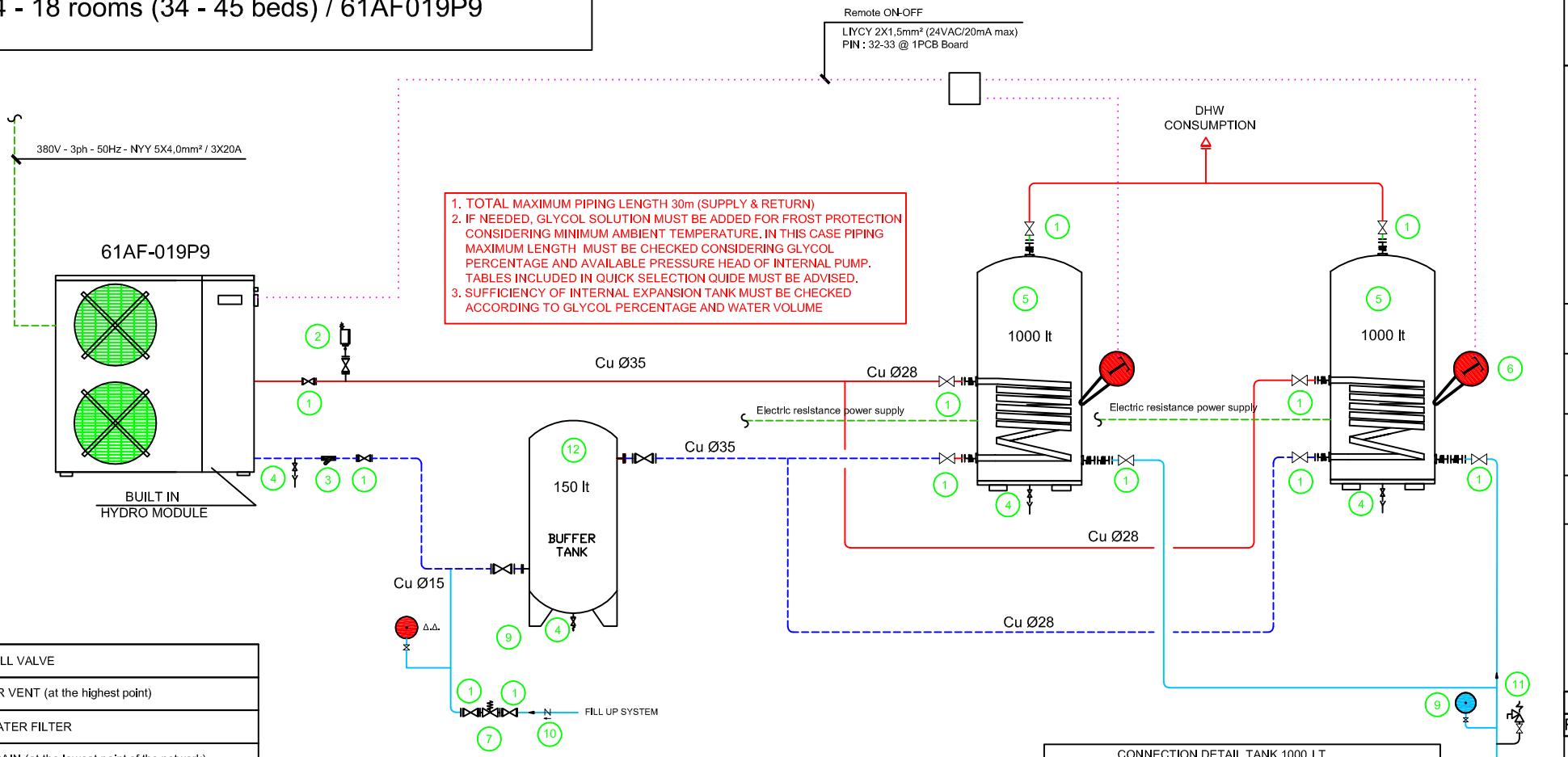
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

PLEVLJA - 7 months operating period

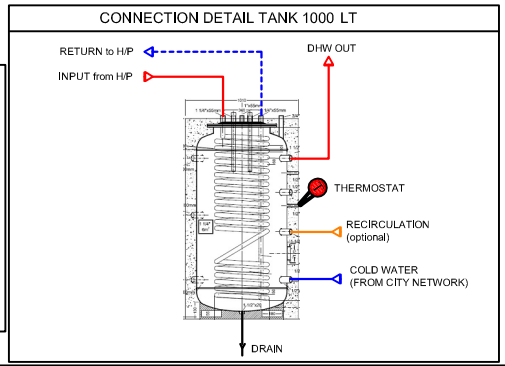
14 - 18 rooms (34 - 45 beds) / 61AF019P9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
12	BUFFER TANK

Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.



AHI Carrier

DRAWING REFERENCE:

PL07d

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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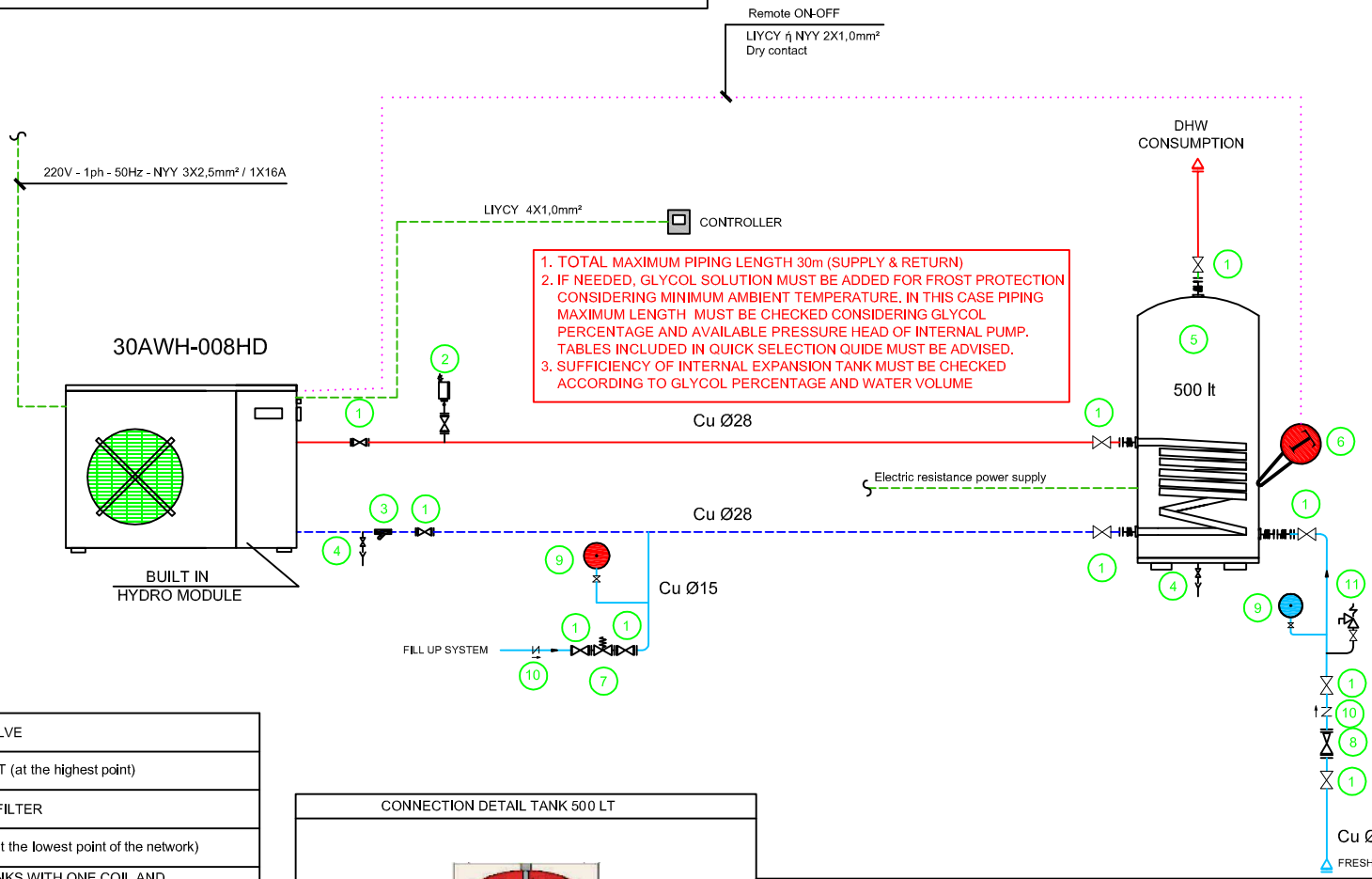
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

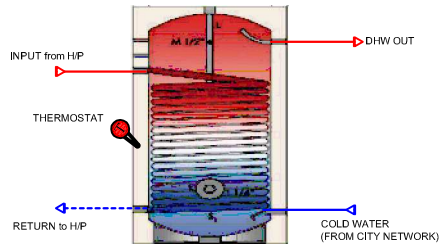
PODGORICA (GOLUBOVCI) - 12 months operating period

Up to 5 rooms (up to 13 beds) / 30AWH008HD



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 500 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

DRAWING REFERENCE:

PO12a

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

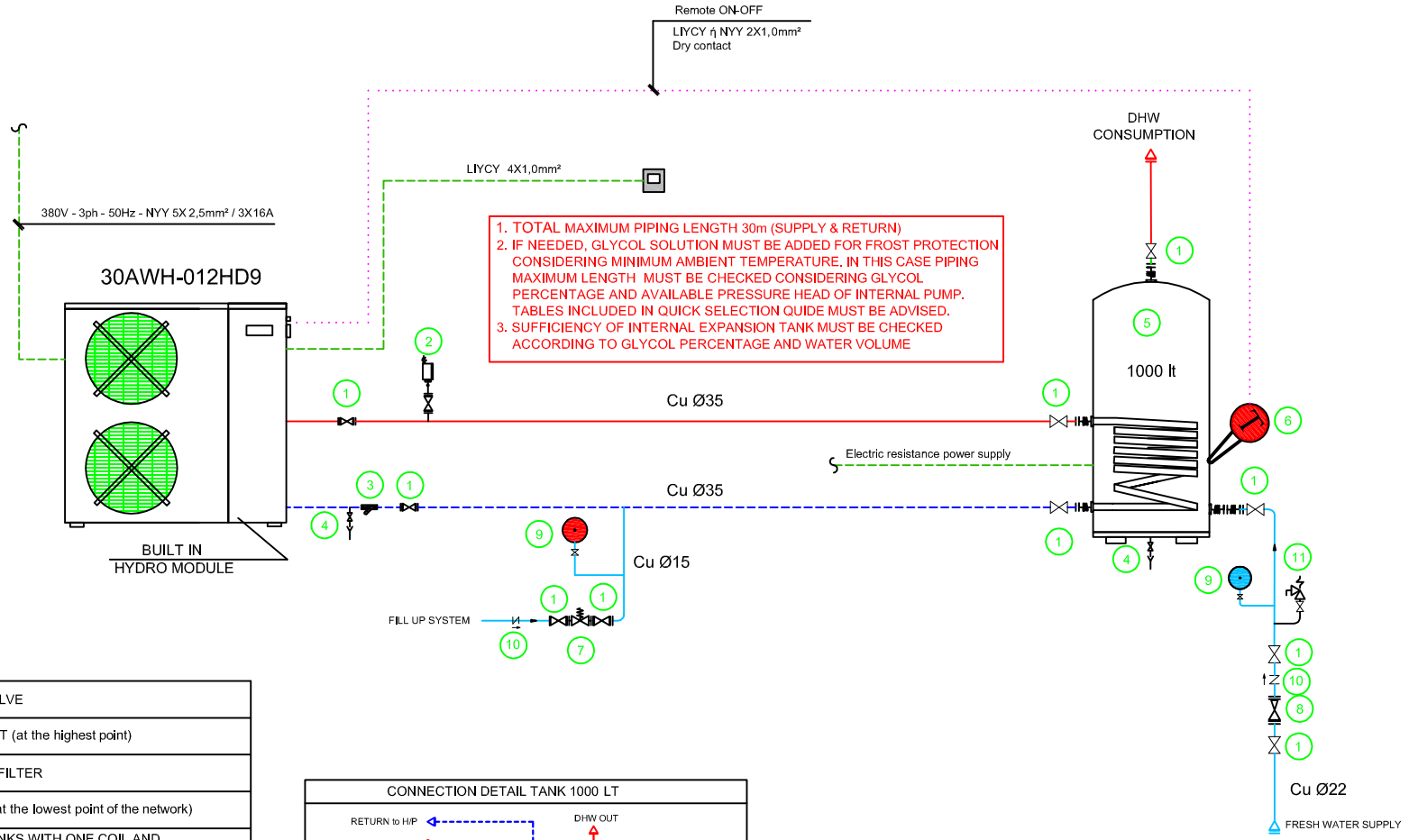
DATE: OCT 2019

REVISION:

CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

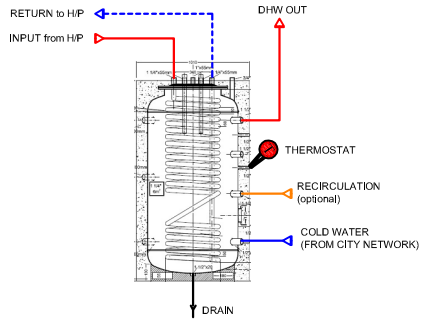
PODGORICA (GOLUBOVCI) - 12 months operating period

6 - 11 rooms (14 - 28 beds) / 30AWH012HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 1000 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PO12b

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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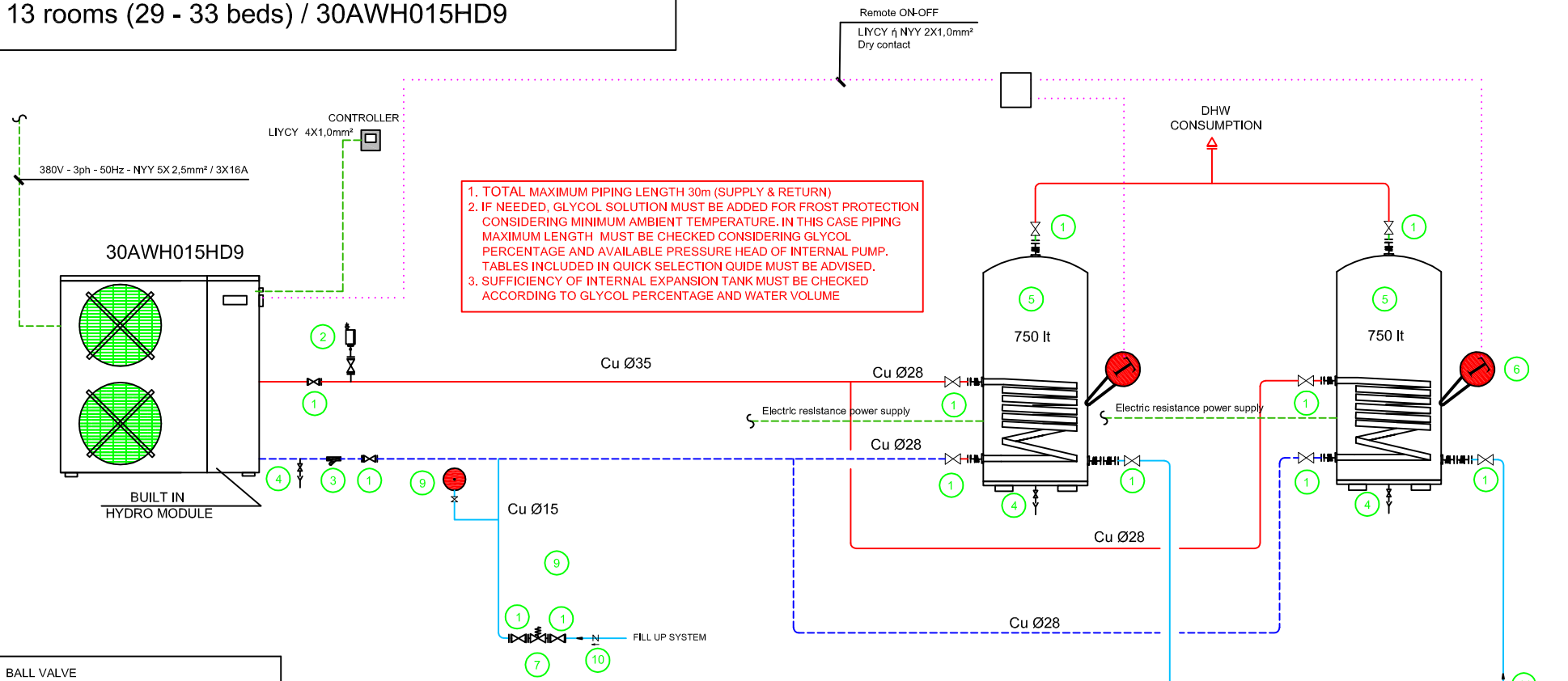
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

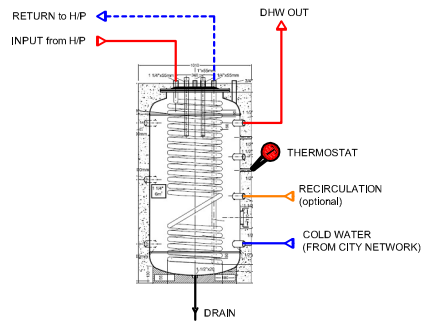
PODGORICA (GOLUBOVCI) - 12 months operating period

12 - 13 rooms (29 - 33 beds) / 30AWH015HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqqulped wlth electrlcal heater (at least 4kw), for supplementary or back up heater, whenever wlll be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PO12c

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019
REVISION:

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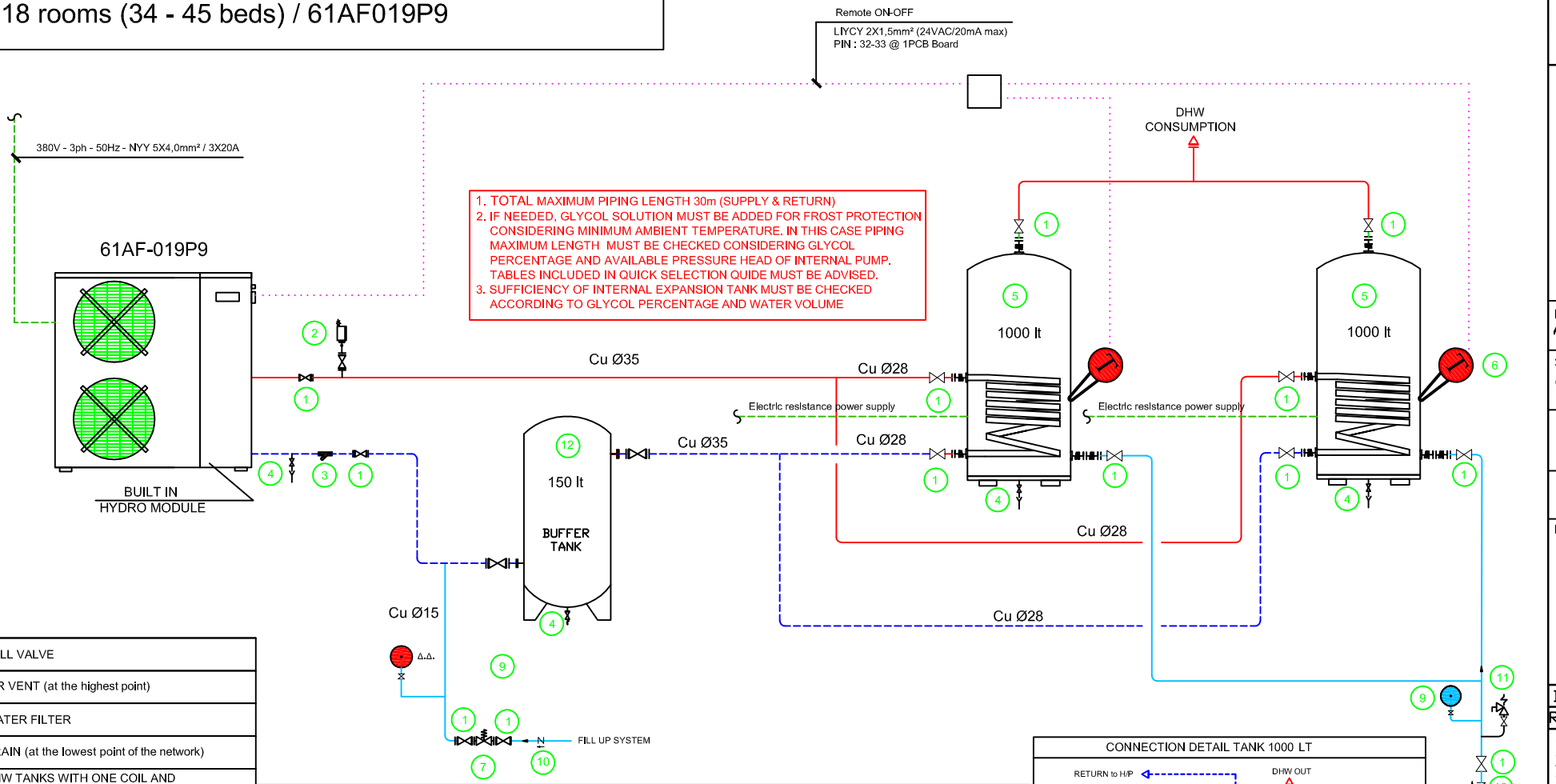
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

PODGORICA (GOLUBOVCI) - 12 months operating period

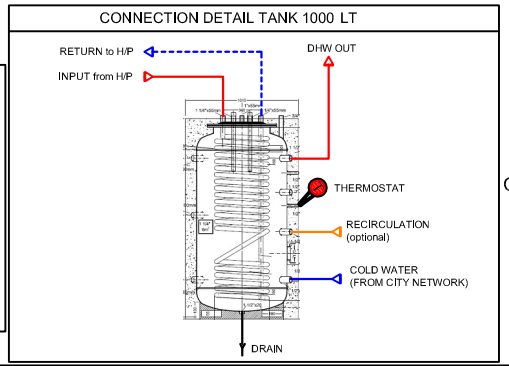
14 - 18 rooms (34 - 45 beds) / 61AF019P9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
12	BUFFER TANK

Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are equiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.



DRAWING REFERENCE:

PO12d

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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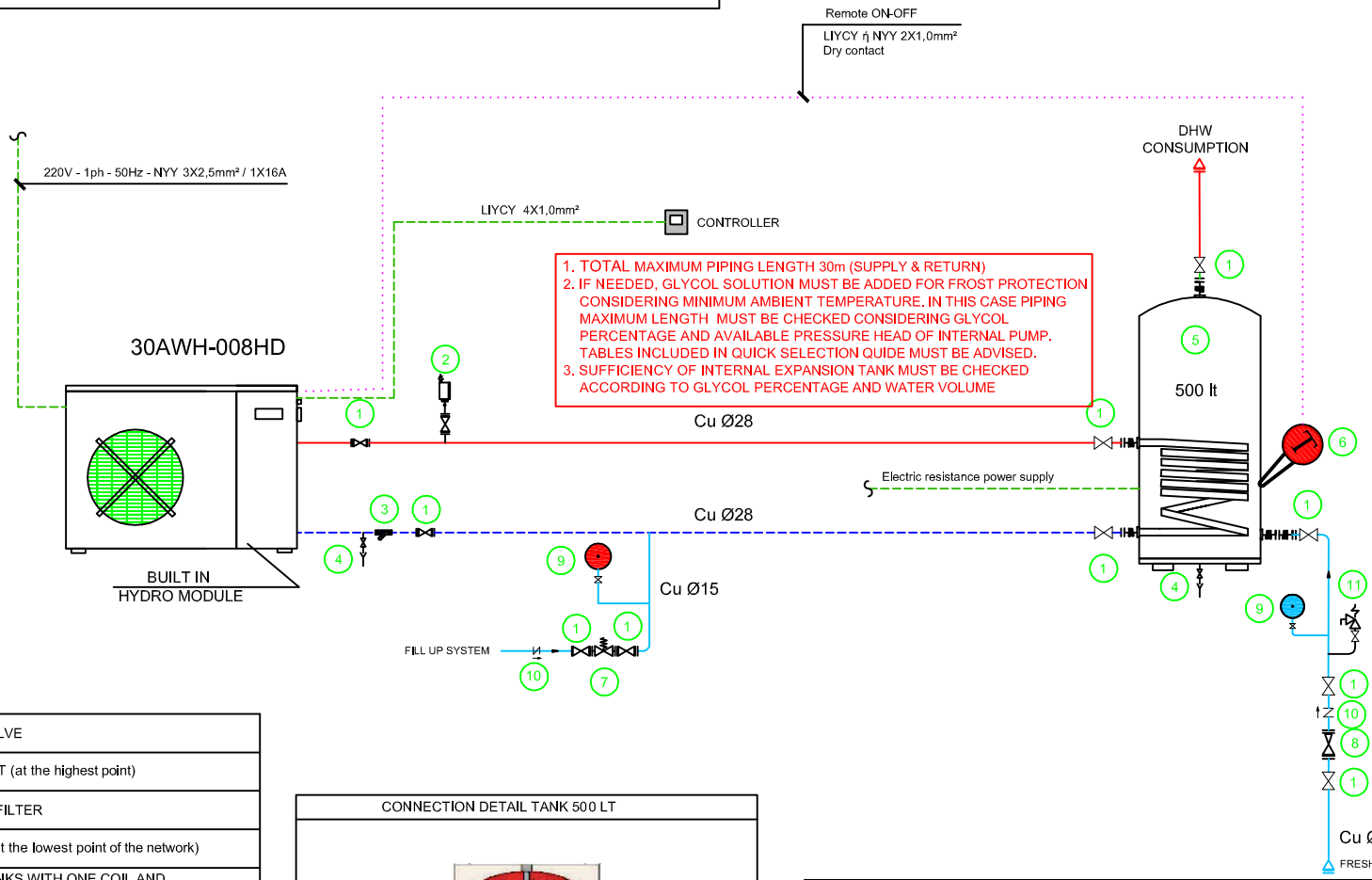
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

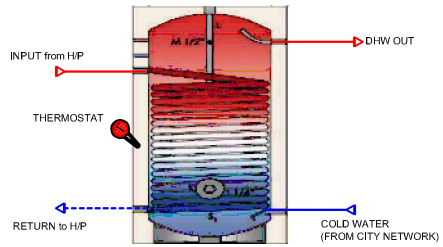
PODGORICA (GOLUBOVCI) - 7 months operating period

Up to 5 rooms (up to 13 beds) / 30AWH008HD



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 500 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PO 07a

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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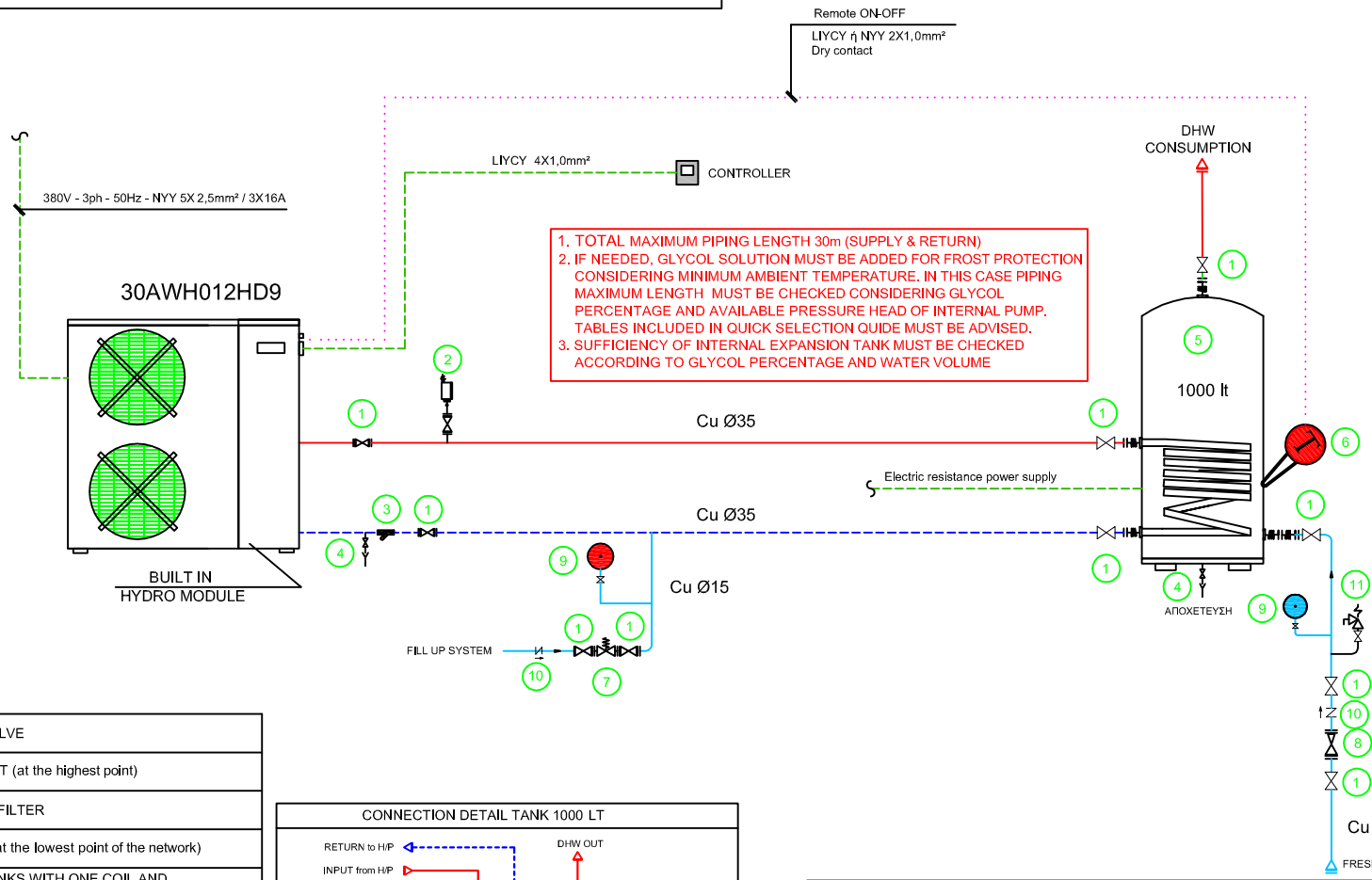
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

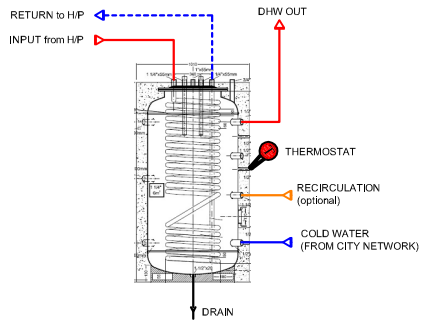
PODGORICA (GOLUBOVCI) - 7 months operating period

6 - 12 rooms (14 - 30 beds) / 30AWH012HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 1000 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PO 07b

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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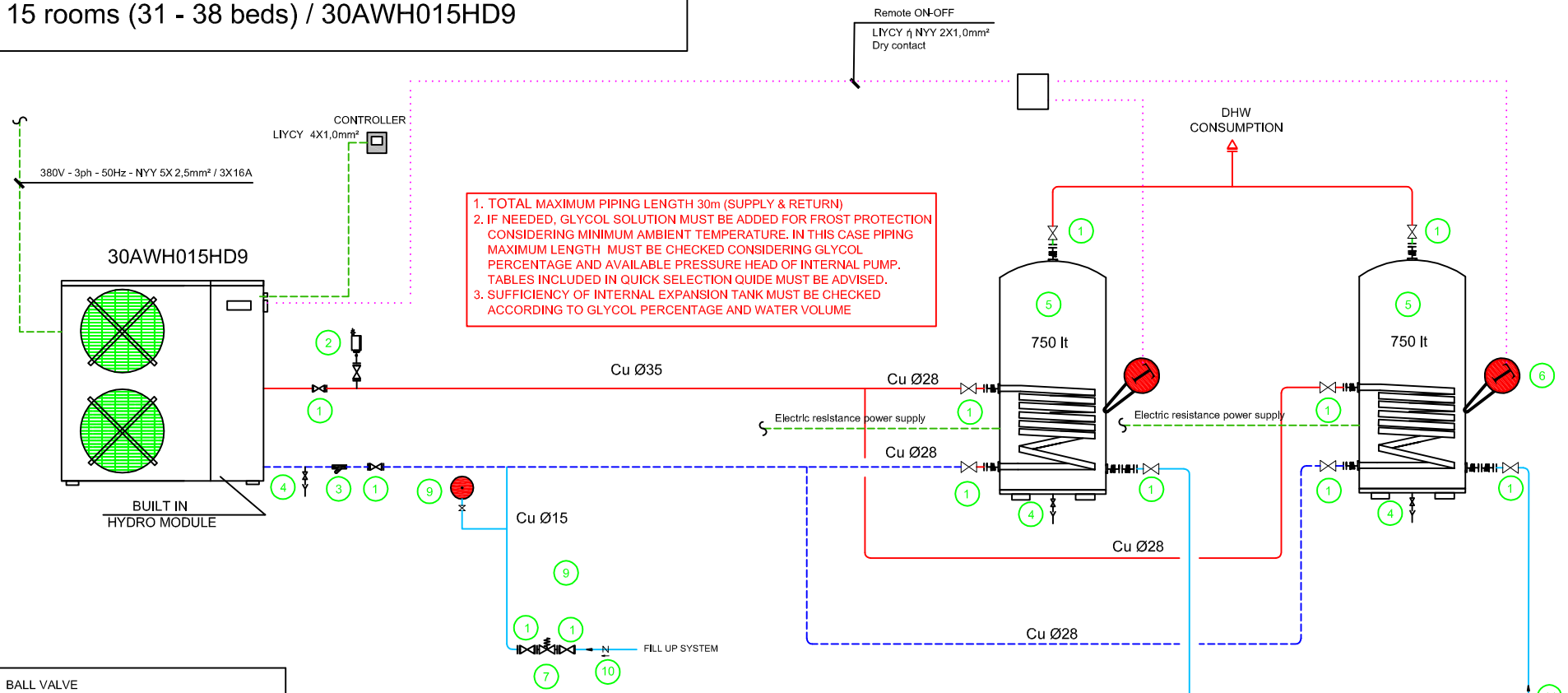
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

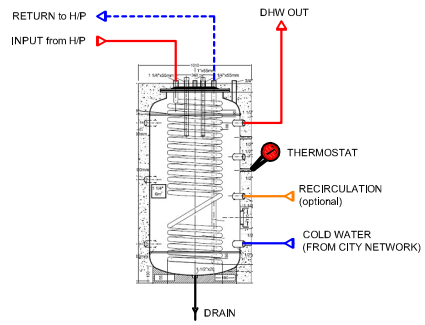
PODGORICA (GOLUBOVCI) - 7 months operating period

13 - 15 rooms (31 - 38 beds) / 30AWH015HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqqulped wlth electrlcal heater (at least 4kw), for supplementary or back up heater, whenever wlll be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

PO 07c

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019
REVISION:

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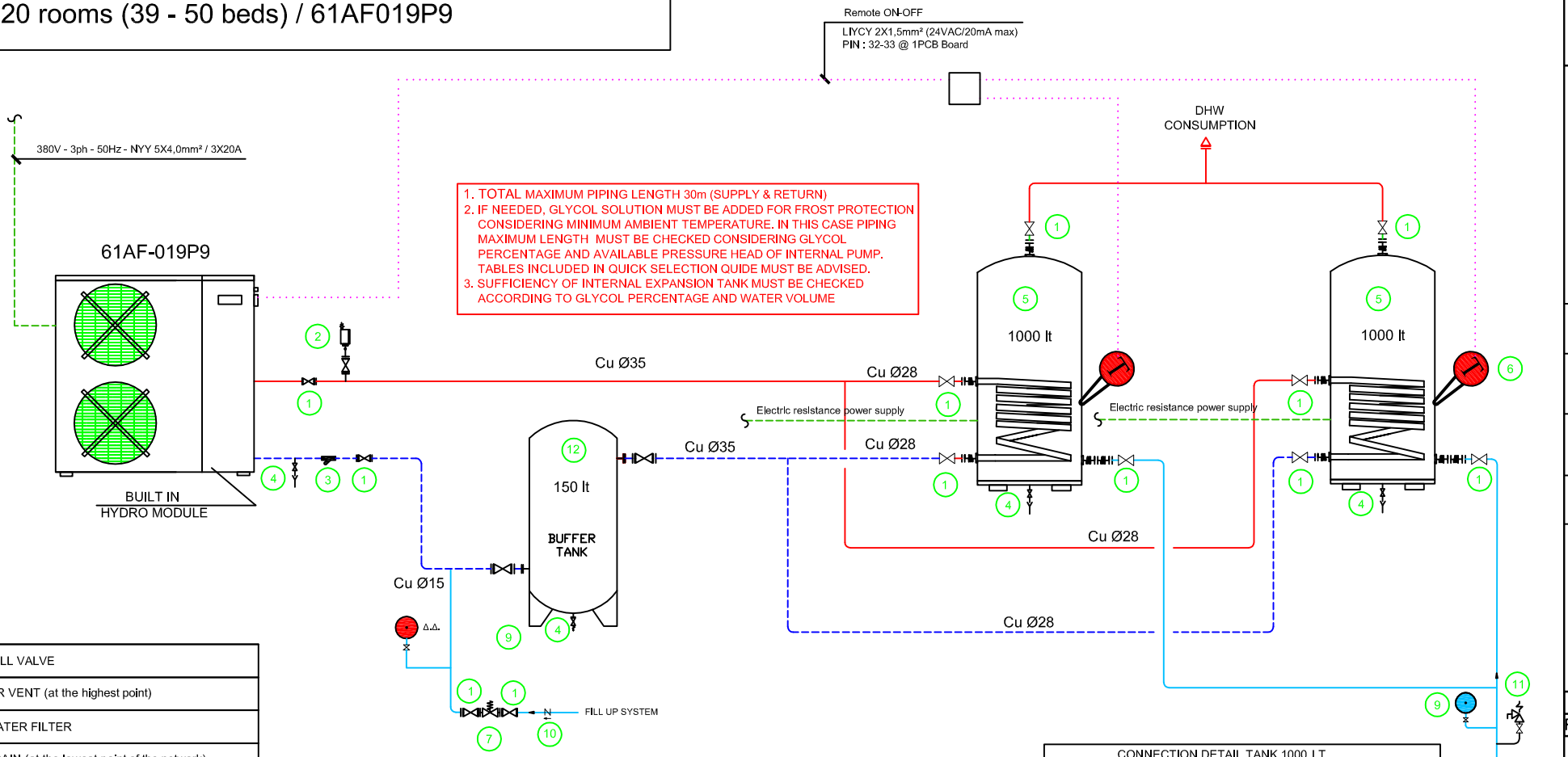
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

PODGORICA (GOLUBOVCI) - 7 months operating period

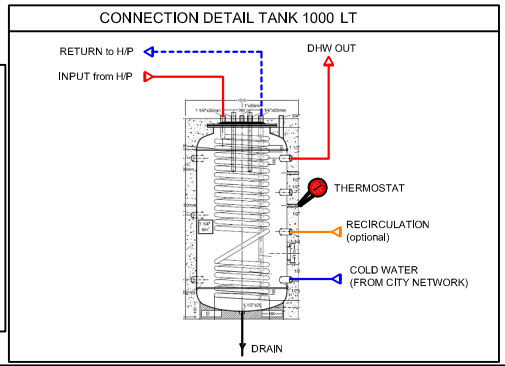
16 - 20 rooms (39 - 50 beds) / 61AF019P9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
12	BUFFER TANK

Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are equiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.



AHI Carrier

DRAWING REFERENCE:

PO 07d

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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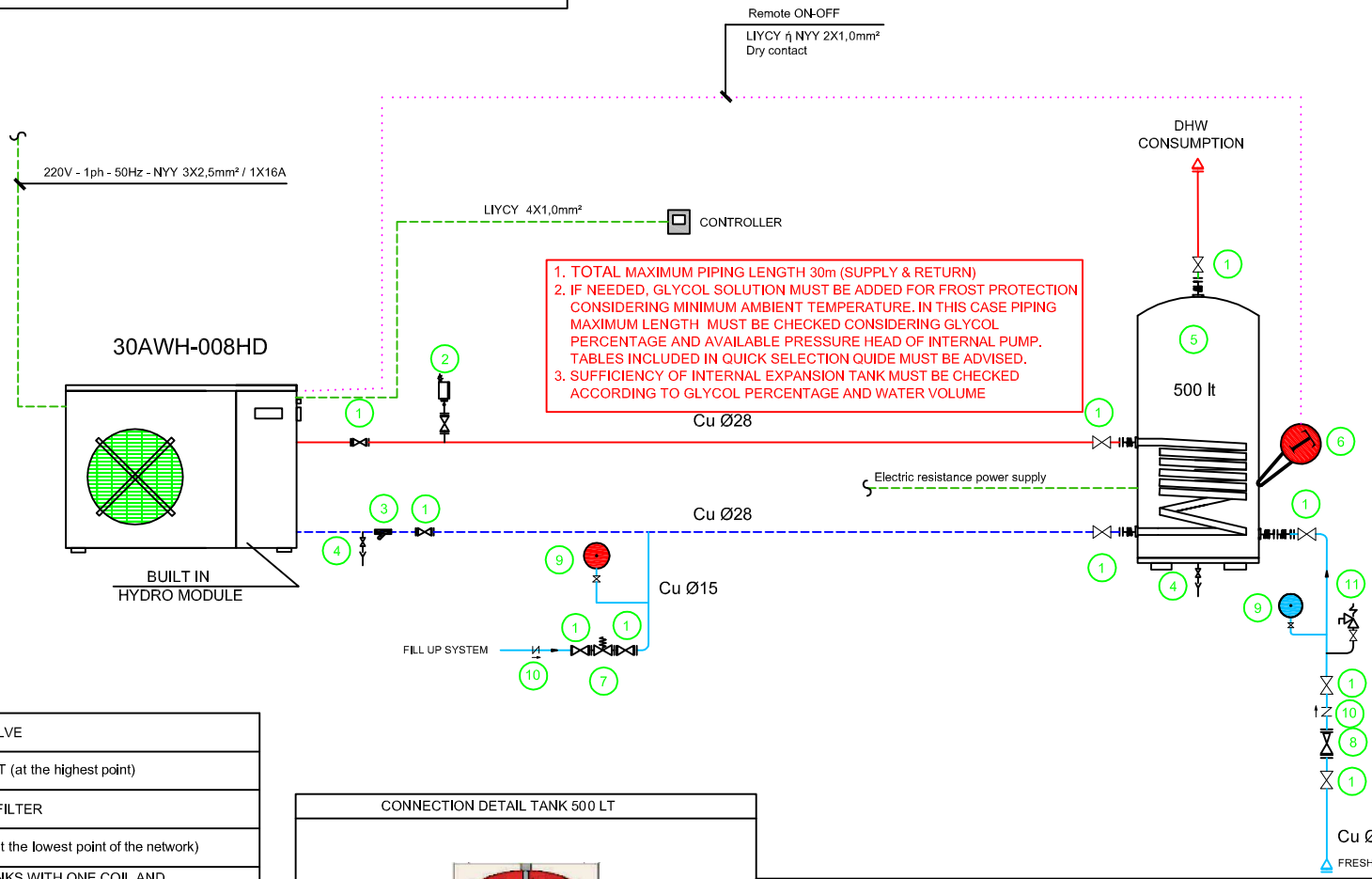
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

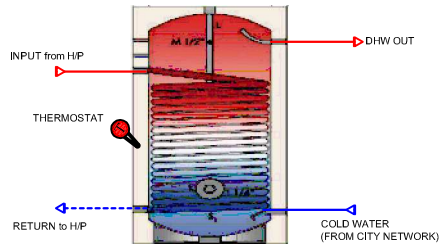
TIVAT - 12 months operating period

Up to 5 rooms (up to 13 beds) / 30AWH008HD



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 500 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

TI12a

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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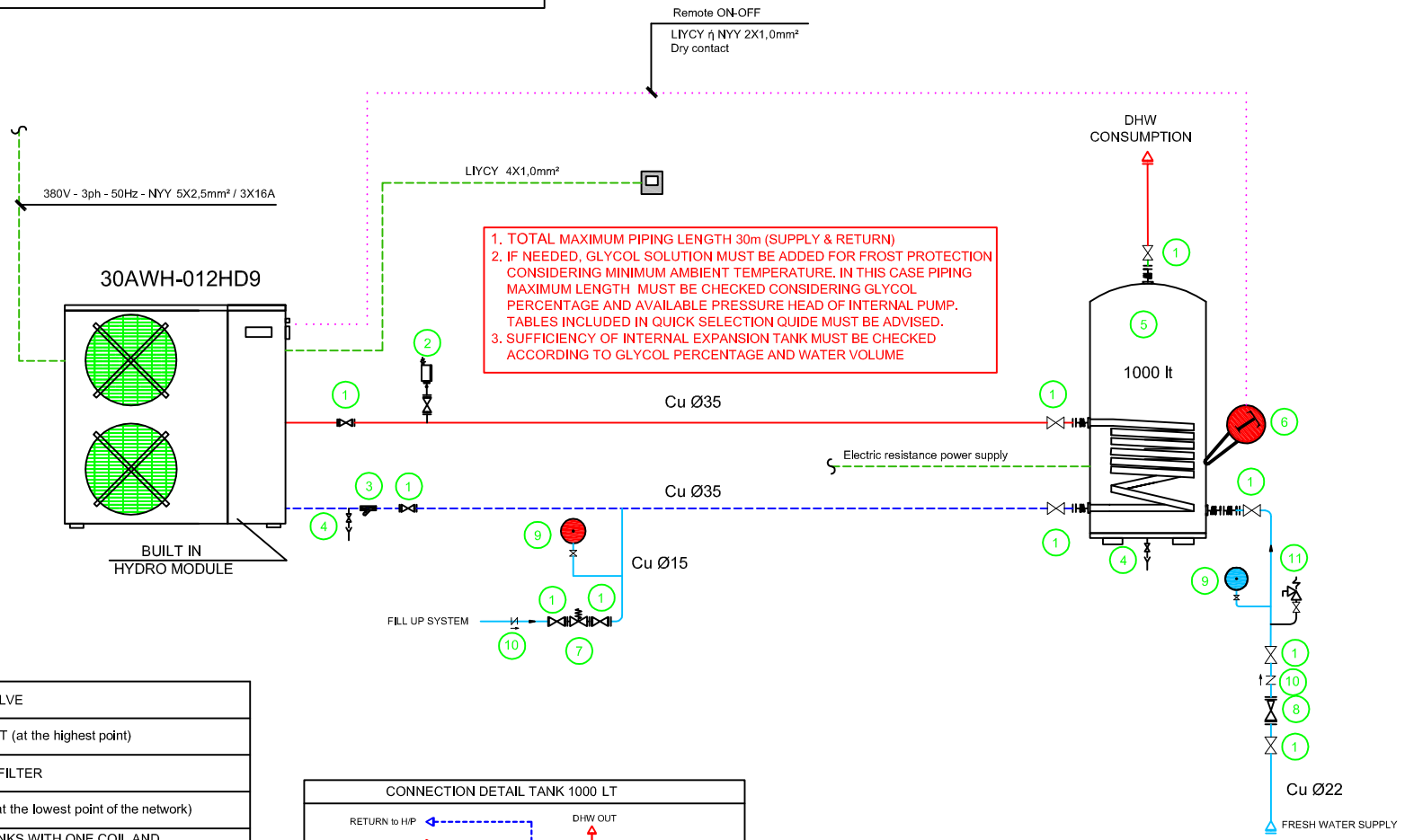
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

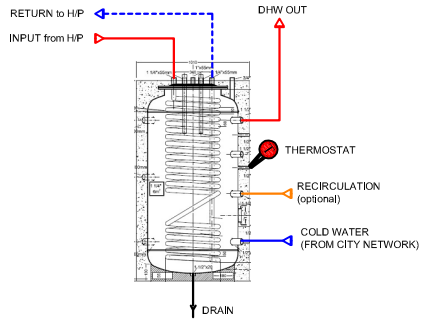
TIVAT - 12 months operating period

6 - 11 rooms (14 - 28 beds) / 30AWH012HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 1000 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

TI12b

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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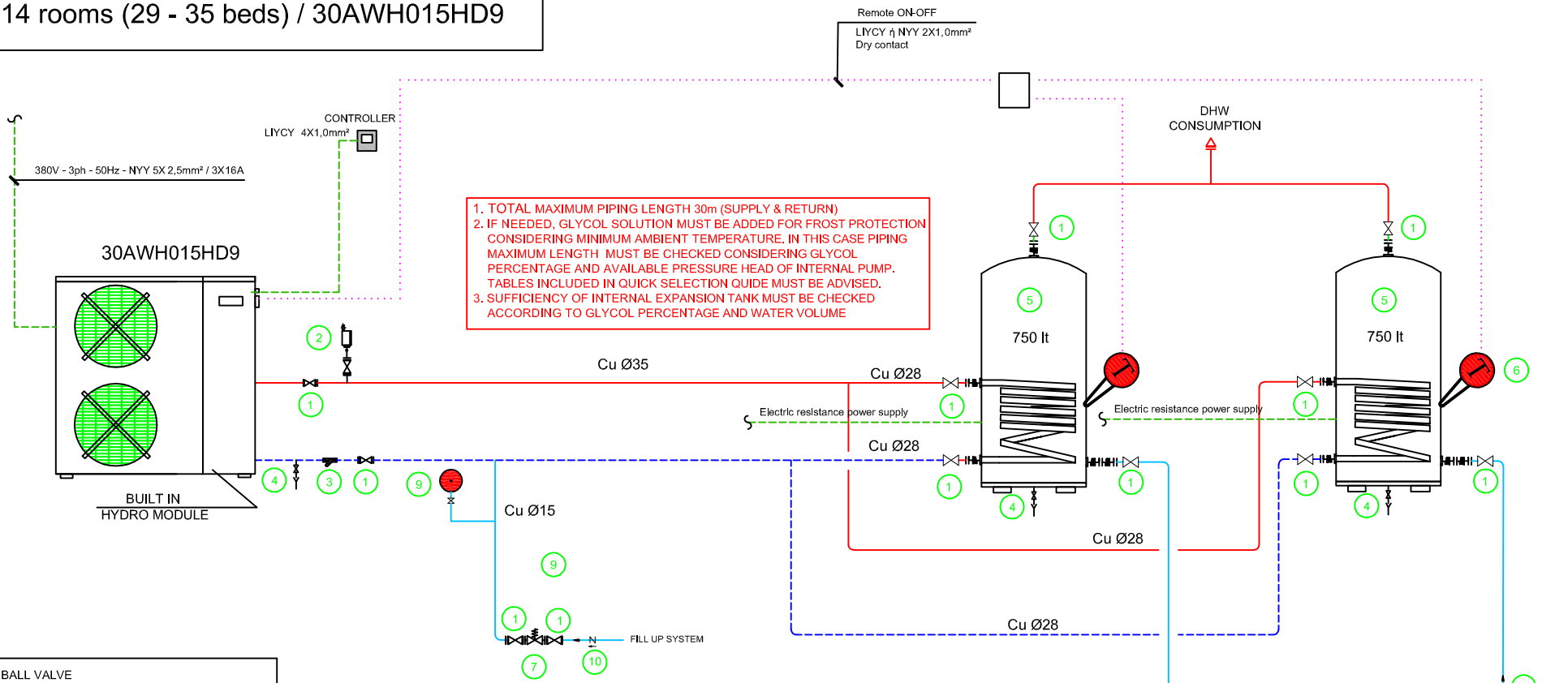
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

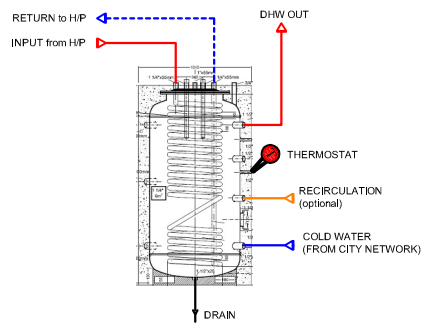
TIVAT - 12 months operating period

12 - 14 rooms (29 - 35 beds) / 30AWH015HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqqulped wlth electrlcal heater (at least 4kw), for supplementary or back up heater, whenever wlll be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

DRAWING REFERENCE:

TI12c

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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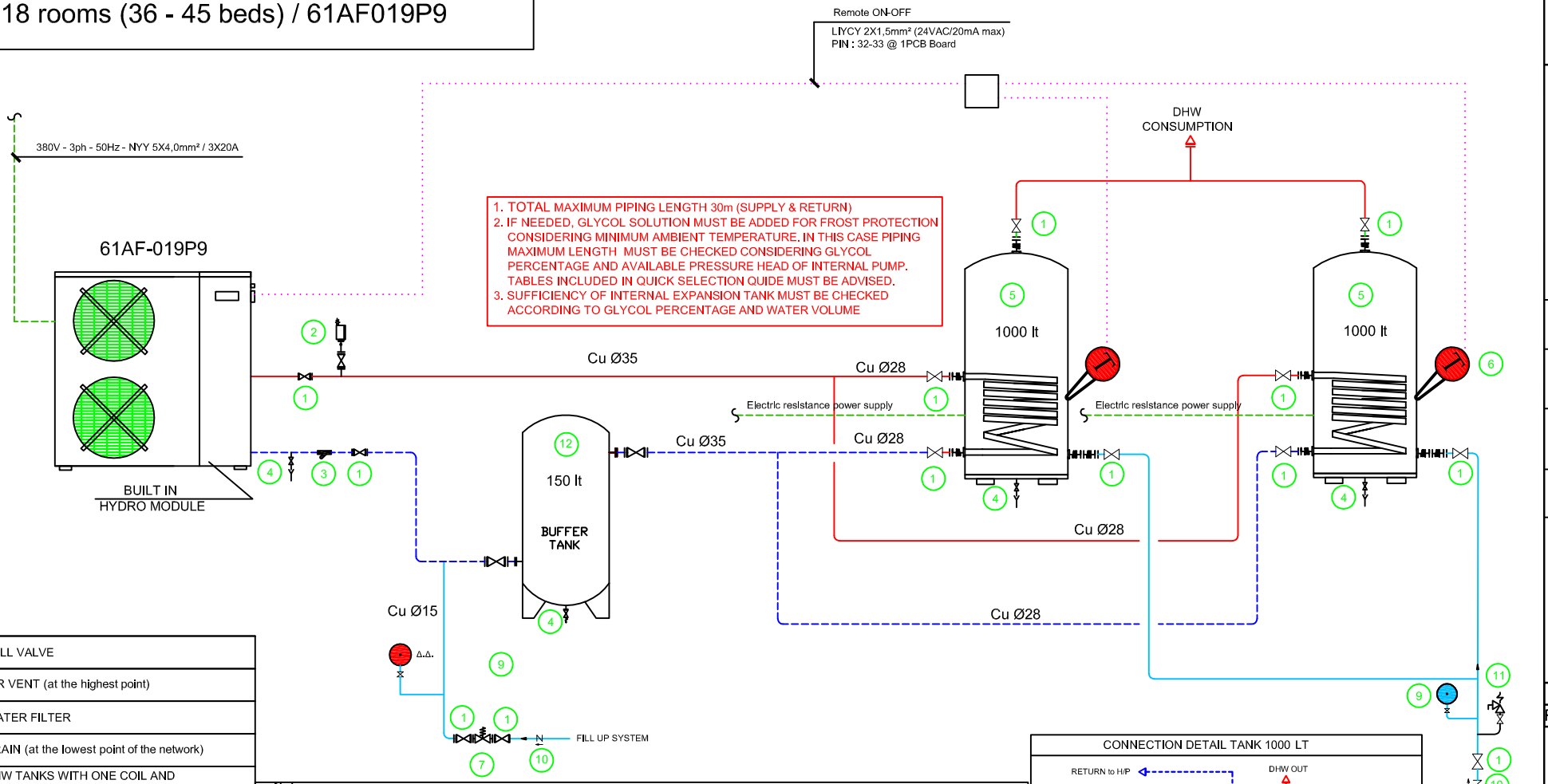
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

TIVAT - 12 months operating period

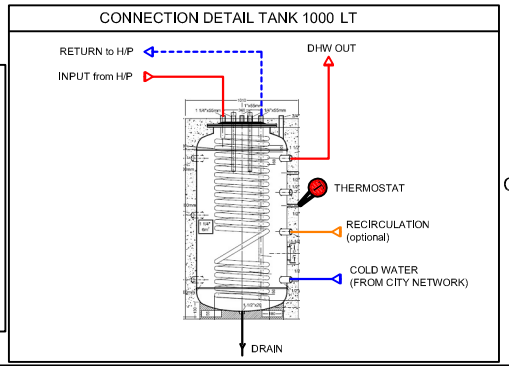
15 - 18 rooms (36 - 45 beds) / 61AF019P9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
12	BUFFER TANK

Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.



DRAWING REFERENCE:

TI12d

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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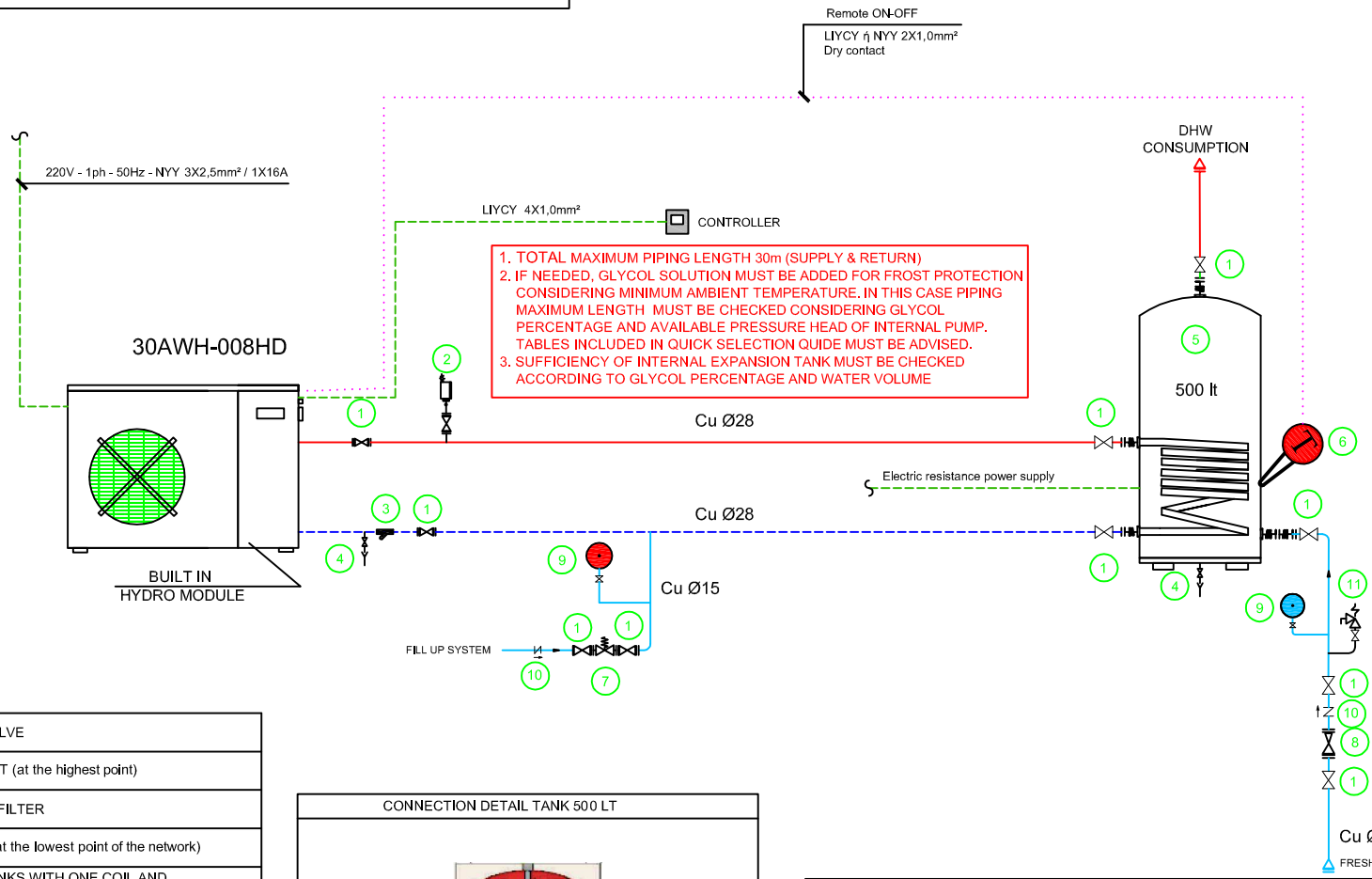
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

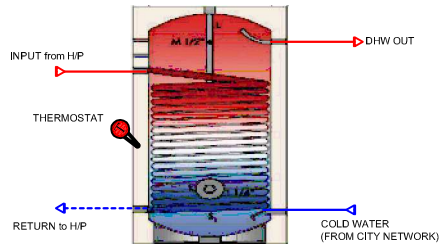
TIVAT - 7 months operating period

Up to 5 rooms (up to 13 beds) / 30AWH008HD



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 500 LT



Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqquiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

DRAWING REFERENCE:

TI07a

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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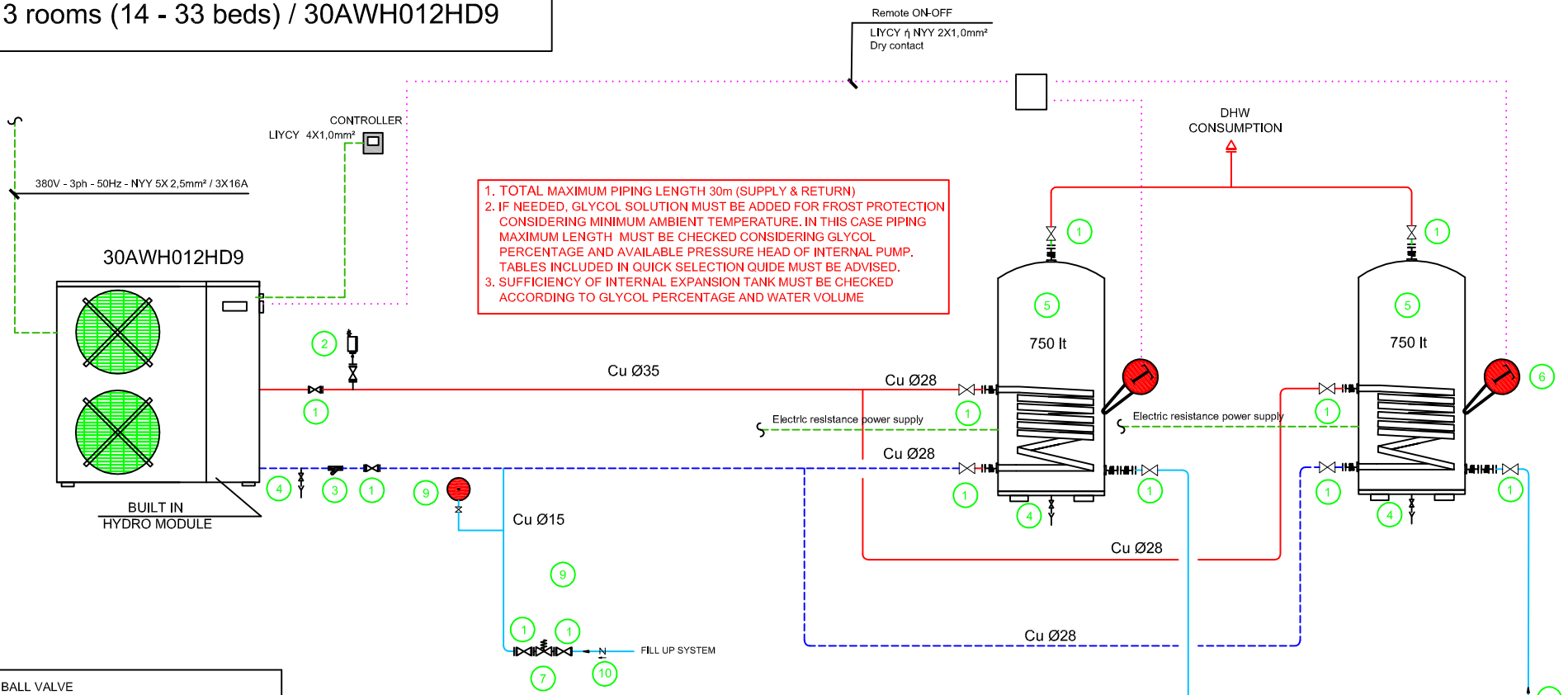
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

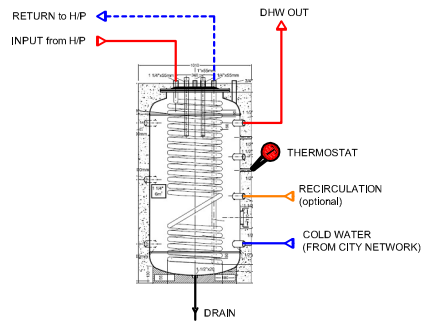
TIVAT - 7 months operating period

6 - 13 rooms (14 - 33 beds) / 30AWH012HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqqulped wlth electrlcal heater (at least 4kw), for supplementary or back up heater, whenever wlll be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

TI07b

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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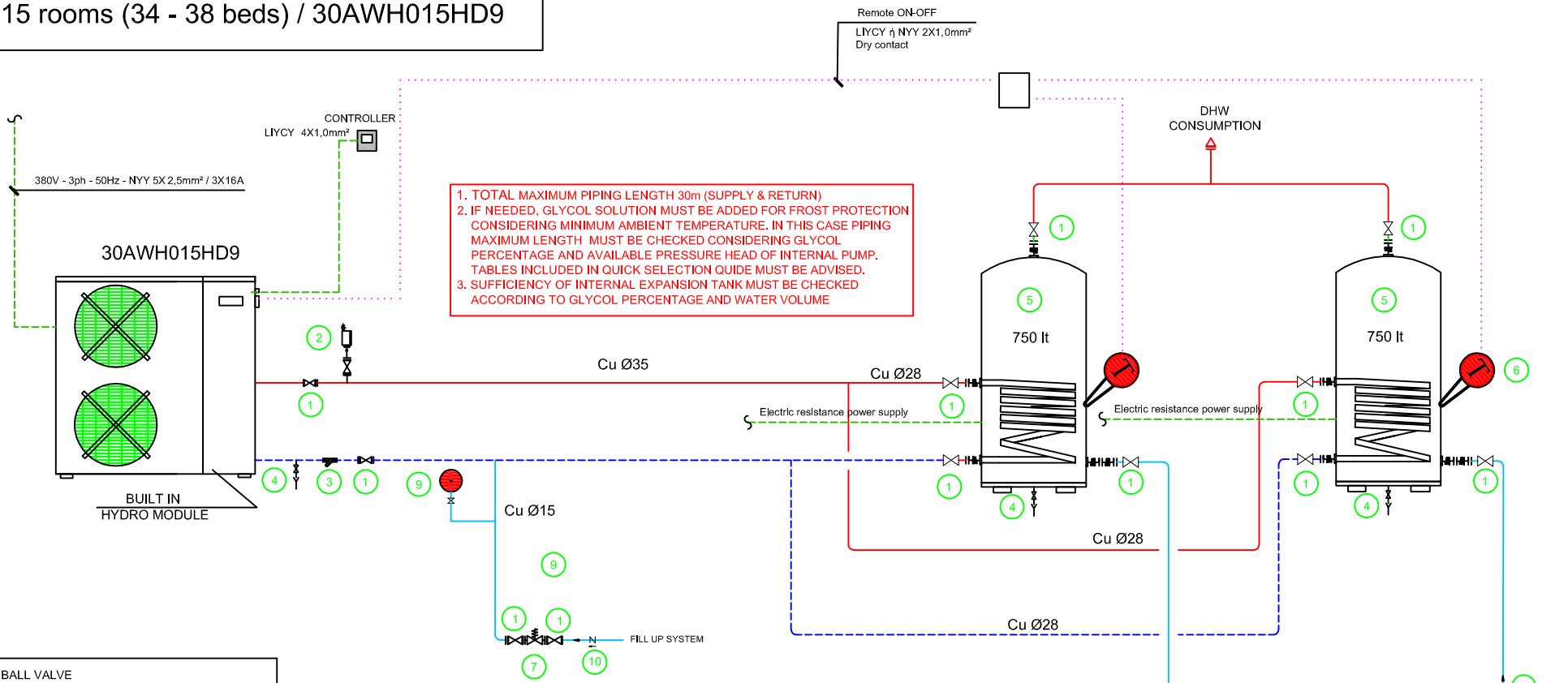
CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

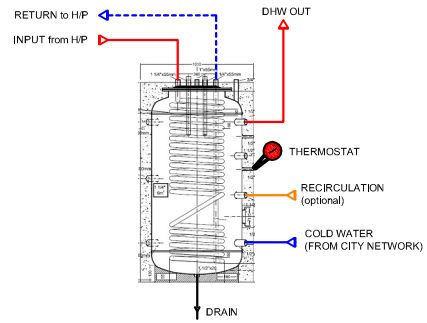
TIVAT - 7 months operating period

14 - 15 rooms (34 - 38 beds) / 30AWH015HD9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
11	SAFETY VALVE

CONNECTION DETAIL TANK 750 LT



Notes:

1.The heat pump must not be disabled from the power supply,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are eqqulped wlth electrlcal heater (at least 4kw), for supplementary or back up heater, whenever wlll be needed.
3. The immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal). The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.

AHI Carrier

DRAWING REFERENCE:

TI07c

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

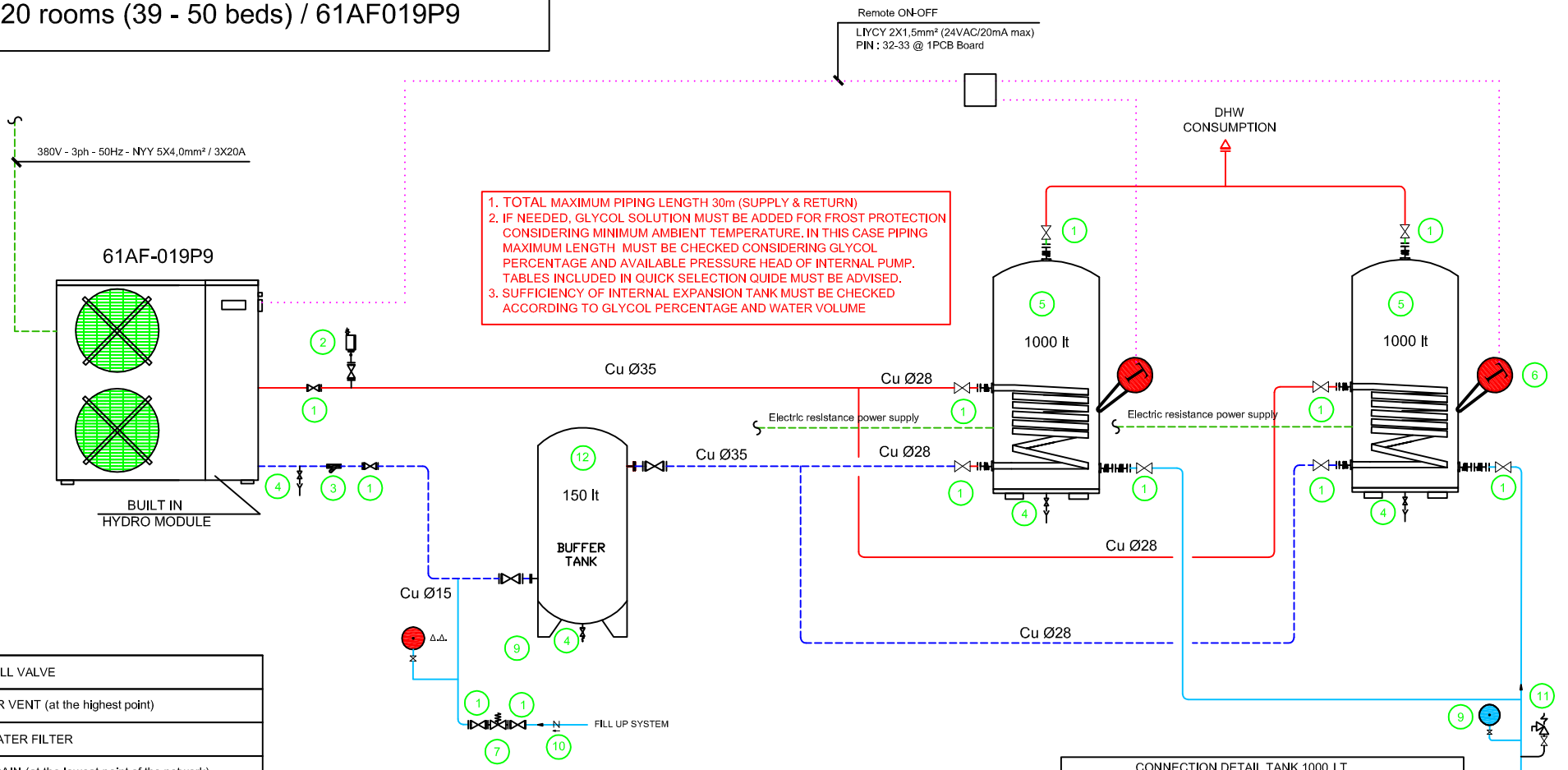
REVISION:

This drawing is part of DWH Quick Selection Guide document, based on certain assumptions. AHI CARRIER SEE reserves the right to change data, calculations and drawings, without previous notice. The final adjustment to the project's requirements is responsibility of the Installer. Before commencing any application, contact with your engineer at AHI CARRIER SEE in order to customize it to the specific project's characteristics.

CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

TIVAT - 7 months operating period

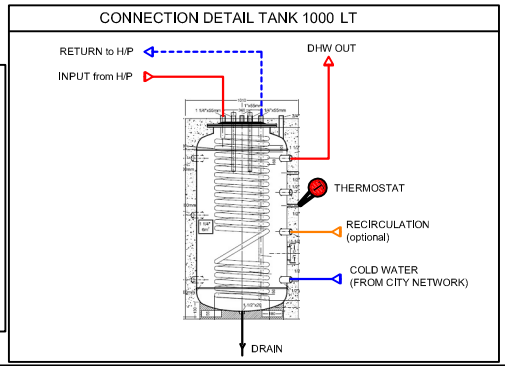
16 - 20 rooms (39 - 50 beds) / 61AF019P9



1	BALL VALVE
2	AIR VENT (at the highest point)
3	WATER FILTER
4	DRAIN (at the lowest point of the network)
5	DHW TANKS WITH ONE COIL AND ELECTRIC RESISTANCE 4KW
6	IMMERSIVE THERMOSTAT ON-OFF
7	AUTOMATED FILLING VALVE
8	PRESURE REDUCE VALVE
9	EXPANSION TANK
10	NON-RETURN VALVE
12	BUFFER TANK

Notes:

1.The heat pump must not be disabled from the power supply ,even if the hotel is closed, in order to ensure that frost protection of the heat pump is always active.
2. DHW Tanks are equiped with electrical heater (at least 4kw), for supplementary or back up heater, whenever will be needed.
3. The Immersion thermostat has an adjustive hysterisis range (temperature difference between "ON" & "OFF" signal) . The minimum suggested hysterisis (difference) is 8°C. For example, signal "ON" at 42C water temperature, signal "OFF" at 50C water temperature.
4. The immersion thermostat gives a signal to stop the heat pump (Toff) when the water temperature inside the tank is the maximun that can be achieved and gives a signal to the heat pump to start (Ton) when the water temperature inside the tank is 8°C lower than the Toff temperature.
5. The electric resistance is set to operate when the water temperature inside the tank is 2-3°C lower than the minimum allowable temperature (Ton). This is a threshold point for the supplementary heating.
6. Thermal shock must be done periodiacally for protection against leggionela through the electric resistance, where the water temperature must be increased up to 70°C.



AHI Carrier

DRAWING REFERENCE:

TI07d

PREPARED BY:
AHI CARRIER SEE

SALES OFFICE:
ATHENS - GREECE

JOBSITE LOCATION:

NOTES:

DATE: OCT 2019

REVISION:

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CARRIER DWG # _____
REV. __ SHT___ OF___
DATE: _____
SUPERSEDES DWG. DATED:
_____

30AWH PHYSICAL DATA

(For more technical data refer to the relevant documentation)

PHYSICAL DATA

30AW				004	006	008	012	015	12-3Ph	15-3Ph
Heating										
H version Full load performances*	HA1	Nominal capacity	kW	4,07	5,76	7,16	11,86	14,46	12	15
		COP	kW/kW	4,15	4,28	3,97	3,95	4,09	4,3	4,2
	HA2	Nominal capacity	kW	3,87	5,76	7,36	12,91	13,96	11,20	14,50
		COP	kW/kW	3,26	3,05	3,19	3,03	3,23	3,35	3,30
	HA3	Nominal capacity	kW	4,27	5,43	7,25	10,9	12,4	11,4	12,2
		COP	kW/kW	2,92	2,77	2,81	2,79	3,02	3,12	2,98
Standard unit		**SCOP**	**kW/kW**	**3,53**	**3,37**	**2,84**	**2,95**	**3,25**	**3,47**	**3,33**
Seasonal energy efficiency**	HA3	**ηs heat**	**%**	**138**	**132**	**111**	**115**	**127**	**136**	**130**
		P_{rated}	kW	3	4	5	9	9	8	9
Cooling										
H version Full load performances*	CA1	Nominal capacity	kW	3,33	4,73	5,84	10,2	13,0	10,2	13,0
		EER	kW/kW	3,02	3,00	2,98	2,96	2,95	3,00	2,91
		Eurovent class		B	B	B	B	B	B	B
	CA2	Nominal capacity	kW	4,93	7,04	7,84	13,5	16,0	13,5	16,0
		EER	kW/kW	4,20	3,70	3,99	3,66	3,85	4,15	3,81
		Eurovent class		A	B	A	B	A	A	A
Sound levels										
Standard unit										
Sound power level(1) (H3)			dB(A)	62	62	64	67	68	68	68
Sound pressure level at 4m(2) (H3)			dB(A)	42	42	44	47	48	48	48
Sound power level(1) (C1)			dB(A)	64	64	65	68	69	69	69
Sound pressure level at 4 m(2) (C1)			dB(A)	44	44	45	48	49	49	49
Dimensions										
Length			mm	908	908	908	908	908	908	908
Depth			mm	350	350	350	350	350	350	350
Height			mm	821	821	821	1363	1363	1363	1363
Operating weight(3)										
Unit without circulator (X version)			kg	54	58	66	101	109	113	113
Unit with circulator (H version)			kg	57	61	69	104	112	116	116
Compressors				DC Inverter Twin-Rotary						
Refrigerant				R410A						
Circuit charge(3)			kg	1,195	1,35	1,81	2,45	3,385	2,45	3,385
			CO_2 eq.	2,5	2,8	3,8	5,1	7,1	5,1	7,1
Air heat exchangers				Copper tubes and aluminium fins						
Fans				Variable speed 3 blades fan						
Quantity				1	1	1	2	2	2	2

* In accordance with standard EN14511-3:2013

** In accordance with standard EN14825:2016, average climate

HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fooling factor 0 m².K/W

HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb= 7°C db/6°C wb, evaporator fooling factor 0 m².K/W

HA3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47°C/55°C, outside air temperature tdb/twb= 7°C db/6°C wb, evaporator fooling factor 0 m².K/W

CA1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fooling factor 0 m².K/W

CA2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator fooling factor 0 m².K/W

$\eta s\ heat_{47/55°C}$ & $SCOP_{47/55°C}$ **Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application**

(1) In dB ref=10^{-12} W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20µPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

(3) Weights are guideline only. Refer to the unit nameplate

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

Eurovent certified values

HEATING CAPACITIES IN ACCORDANCE WITH EN14511-3:2013

30AWH units

	LWT °C	Outside air dry-bulb (wet-bulb) temperature, °C																			
		-20 (-21)							-15 (-16)							-7 (-8)						
		Qh kW			COP kW/kW			q l/s	Qh kW			COP kW/kW			q l/s	Qh kW			COP kW/kW			q l/s
		Nom	Min	Max	Nom	Min	Max	Nom	Nom	Min	Max	Nom	Min	Max	Nom	Nom	Min	Max	Nom	Min	Max	Nom
30AWH004H–	35	1,22	0,45	1,22	1,16	1,80	1,16	0,058	2,35	0,49	2,67	2,00	2,20	1,90	0,112	2,50	0,52	2,80	2,40	2,55	2,30	0,119
30AWH006H–		3,00	0,45	3,11	2,06	2,10	2,00	0,143	3,20	0,60	3,26	2,31	2,47	2,21	0,153	3,44	0,64	3,50	2,51	2,69	2,40	0,164
30AWH008H–		1,76	0,56	1,76	2,46	2,50	2,46	0,084	3,20	0,73	3,70	2,47	2,64	2,00	0,153	3,76	0,78	4,20	2,63	2,81	2,10	0,180
30AWH012H–		3,22	1,50	3,22	2,08	2,10	2,08	0,154	6,44	1,95	7,28	2,28	2,31	2,26	0,308	6,94	2,10	7,40	2,52	2,56	2,50	0,332
30AWH015H–		4,45	1,26	4,45	1,78	1,84	1,78	0,213	7,42	1,63	8,30	2,36	2,42	2,33	0,355	7,80	1,76	9,10	2,50	2,57	2,47	0,382
30AWH012H–9		4,01	1,34	4,01	1,95	1,90	1,95	0,143	6,68	1,74	7,52	2,51	2,65	2,51	0,286	7,12	1,88	8,73	2,66	2,74	2,50	0,340
30AWH015H–9		4,45	1,36	4,45	1,78	1,88	1,78	0,177	7,42	1,76	8,35	2,45	2,47	2,45	0,355	8,00	1,90	9,46	2,60	2,62	2,40	0,382
30AWH004H–	45	1,18	0,40	1,18	1,07	1,75	1,07	0,056	2,28	0,44	2,56	1,85	2,10	1,80	0,109	2,40	0,49	2,60	2,15	2,38	2,00	0,115
30AWH006H–		1,44	0,44	1,44	1,82	2,02	1,82	0,069	3,20	0,59	3,24	2,13	2,31	2,03	0,153	3,45	0,64	3,50	2,20	2,39	2,11	0,165
30AWH008H–		1,27	0,57	1,27	2,00	1,96	2,00	0,061	3,35	0,71	3,60	2,11	2,26	1,65	0,160	3,85	0,76	4,00	2,23	2,45	1,70	0,184
30AWH012H–		3,02	1,23	3,02	1,96	2,00	1,96	0,144	6,04	1,83	6,82	2,10	2,14	2,08	0,288	6,63	2,01	7,50	2,19	2,23	2,17	0,317
30AWH015H–		3,00	1,28	3,00	1,70	1,73	1,70	0,143	7,05	1,55	7,98	2,08	2,14	2,06	0,358	7,65	1,76	9,10	2,20	2,26	2,17	0,382
30AWH012H–9		3,00	1,39	3,00	1,72	1,74	1,72	0,133	6,35	1,75	7,23	1,82	2,16	1,82	0,140	5,87	1,77	8,72	2,26	2,28	2,20	0,281
30AWH015H–9		3,00	1,38	3,00	1,70	1,73	1,70	0,133	7,05	1,62	8,03	1,80	2,14	1,80	0,191	8,00	1,76	9,44	2,26	2,26	2,13	0,382
30AWH004H–	55								1,17	0,40	1,17	1,60	1,80	1,60	0,056	2,44	0,44	2,49	1,78	1,91	1,77	0,117
30AWH006H–									1,58	0,56	1,58	1,76	1,95	1,76	0,075	3,28	0,61	3,33	1,90	2,06	1,85	0,157
30AWH008H–									0,83	0,69	0,83	1,88	1,98	1,88	0,039	3,60	0,74	3,96	1,86	2,09	1,65	0,172
30AWH012H–									2,87	1,69	2,87	1,67	1,69	1,67	0,137	6,37	1,93	7,20	1,80	1,83	1,78	0,304
30AWH015H–									3,00	1,53	3,00	1,74	1,80	1,74	0,143	7,35	1,65	7,94	1,85	1,90	1,74	0,358
30AWH012H–9									2,89	1,71	2,89	1,73	1,82	1,73	0,111	5,79	1,67	6,97	1,86	1,92	1,84	0,277
30AWH015H–9									3,00	1,59	3,00	1,78	1,80	1,78	0,124	6,49	1,65	7,94	1,88	1,90	1,76	0,31
30AWH004H–	60															2,23	0,40	2,45	1,75	1,87	1,72	0,107
30AWH006H–																3,01	0,56	3,06	1,69	1,80	1,62	0,144
30AWH008H–																1,83	0,65	2,22	1,57	1,58	1,55	0,087
30AWH012H–																6,12	1,85	6,92	1,56	1,59	1,55	0,293
30AWH015H–																6,57	1,51	7,57	1,64	1,67	1,61	0,314
30AWH012H–9																5,41	1,53	6,73	1,56	1,57	1,52	0,258
30AWH015H–9																6,66	1,51	7,54	1,51	1,55	1,42	0,318

	LWT °C	Outside air dry-bulb (wet-bulb) temperature, °C																			
		-3(-4)							0 (-1)							2 (1)						
		Qh kW			COP kW/kW			q l/s	Qh kW			COP kW/kW			q l/s	Qh kW			COP kW/kW			q l/s
		Nom	Min	Max	Nom	Min	Max	Nom	Nom	Min	Max	Nom	Min	Max	Nom	Nom	Min	Max	Nom	Min	Max	Nom
30AWH004H–	35	2,80	0,57	3,13	2,60	2,82	2,80	0,134	2,90	0,61	3,33	2,90	3,02	3,00	0,139	3,25	0,64	3,60	3,00	3,12	3,15	0,155
30AWH006H–		3,75	0,70	3,82	2,77	2,97	2,65	0,179	3,99	0,74	4,06	2,97	3,18	2,84	0,191	4,20	0,78	4,27	3,07	3,29	2,94	0,201
30AWH008H–		4,36	0,88	4,83	2,81	3,04	2,38	0,208	4,74	0,96	5,24	2,94	3,21	2,54	0,226	5,12	1,01	5,52	2,99	3,27	2,64	0,245
30AWH012H–		7,83	2,37	8,85	2,85	2,90	2,83	0,374	8,50	2,57	9,61	3,00	3,05	2,97	0,406	8,75	2,87	10,11	3,11	3,16	3,08	0,418
30AWH015H–		8,98	1,97	10,21	2,81	2,88	2,78	0,429	8,99	2,13	11,05	3,04	3,12	3,00	0,464	9,50	2,45	12,07	3,10	3,28	3,16	0,487
30AWH012H–9		7,68	2,11	9,51	2,82	2,97	2,72	0,367	7,85	2,28	9,92	2,84	3,11	2,74	0,375	8,55	2,62	11,02	3,17	3,28	3,08	0,409
30AWH015H–9		8,49	2,13	10,54	2,75	2,94	2,69	0,406	8,69	2,30	11,15	2,77	3,08	2,70	0,415	9,50	2,65	12,55	3,10	3,24	3,07	0,454
30AWH004H–	45	2,70	0,52	3,03	2,40	2,55	2,36	0,129	2,80	0,55	3,23	2,52	2,68	2,50	0,134	3,00	0,60	3,40	2,64	2,87	2,60	0,143
30AWH006H–		3,76	0,69	3,80	2,31	2,51	2,21	0,180	4,00	0,72	4,02	2,39	2,59	2,29	0,191	4,20	0,79	4,22	2,51	2,78	2,40	0,201
30AWH008H–		4,45	0,87	4,78	2,34	2,51	1,85	0,212	4,81	0,95	5,20	2,42	2,55	2,01	0,230	5,15	0,99	5,48	2,55	2,69	2,11	0,246
30AWH012H–		7,43	2,25	8,40	2,31	2,34	2,29	0,355	8,06	2,44	9,12	2,42	2,46	2,40	0,385	8,48	2,74	9,59	2,61	2,67	2,57	0,405
30AWH015H–		8,98	1,97	10,21	2,34	2,40	2,31	0,429	9,71	2,13	11,05	2,44	2,51	2,42	0,464	9,50	2,47	11,43	2,60	2,71	2,56	0,487
30AWH012H–9		6,23	1,99	9,44	2,39	2,43	2,33	0,298	6,68	2,15	9,83	2,49	2,53	2,43	0,319	7,50	2,49	10,59	2,70	2,74	2,58	0,358
30AWH015H–9		8,40	1,97	10,48	2,39	2,40	2,27	0,401	8,61	2,13	11,04	2,49	2,51	2,37	0,412	9,30	2,47	11,88	2,65	2,71	2,51	0,444
30AWH004H–	55	2,77	0,48	2,83	1,92	2,04	1,89	0,132	2,99	0,50	3,05	2,01	2,14	1,98	0,143	3,15	0,56	3,21	2,13	2,27	2,11	0,15
30AWH006H–		3,70	0,67	3,75	2,04	2,20	1,97	0,177	3,97	0,70	4,00	2,14	2,31	2,07	0,19	4,19	0,78	4,19	2,26	2,44	2,20	0,2
30AWH008H–		4,23	0,84	4,59	1,97	2,19	1,76	0,202	4,50	0,91	4,98	2,08	2,35	1,85	0,215	4,86	0,96	5,24	2,20	2,40	2,00	0,232
30AWH012H–		7,44	2,25	8,41	1,98	2,01	1,96	0,355	8,23	2,45	9,13	2,08	2,11	2,06	0,393	8,66	2,71	9,61	2,20	2,23	2,18	0,414
30AWH015H–		7,99	1,86	8,43	1,98	2,03	1,86	0,382	8,26	2,02	8,73	2,08	2,13	1,95	0,395	8,97	2,30	9,47	2,20	2,25	2,06	0,428
30AWH012H–9		6,35	1,88	7,50	2,00	2,05	1,97	0,304	6,39	2,04	8,02	2,10	2,15	2,06	0,305	7,49	2,33	8,70	2,28	2,28	2,18	0,358
30AWH015H–9		6,90	1,86	8,71	2,01	2,03	1,88	0,33	7,56	2,02	8,95	2,11	2,13	1,97	0,361	7,96	2,30	10,18	2,24	2,25	2,08	0,38
30AWH004H–	60	2,56	0,44	2,80	1,90	2,00	1,85	0,122	2,76	0,46	3,01	1,95	2,09	1,93	0,132	2,91	0,52	3,18	2,08	2,21	2,06	0,139
30AWH006H–		3,39	0,63	3,48	1,80	1,93	1,73	0,162	3,68	0,68	3,80	1,89	2,02	1,82	0,176	3,87	0,72	4,01	1,99	2,13	1,92	0,185
30AWH008H–		2,06	0,73	2,51	1,68	1,69	1,66	0,098	2,24	0,79	2,72	1,76	1,78	1,74	0,107	2,35	0,84	2,86	1,86	1,88	1,85	0,112
30AWH012H–		6,91	2,09	7,81	1,67	1,70	1,66	0,33	7,49	2,27	8,47	1,75	1,78	1,74	0,358	7,89	2,50	8,92	1,85	1,88	1,83	0,377
30AWH015H–		6,75	1,71	7,86	1,76	1,79	1,74	0,323	7,04	1,85	8,21	1,85	1,87	1,82	0,336	7,41	2,10	9,04	1,95	1,98	1,92	0,354
30AWH012H–9		5,93	1,72	7,38	1,56	1,59	1,54	0,283	5,97	1,87	7,58	1,60	1,63	1,58	0,285	7,08	2,12	8,62	2,04	2,06	2,00	0,338
30AWH015H–9		7,30	1,71	8,27	1,52	1,57	1,46	0,349	7,50	1,85	8,50	1,56	1,61	1,53	0,358	8,53	2,10	9,67	1,98	2,04	1,93	0,408

HEATING CAPACITIES IN ACCORDANCE WITH EN14511-3:2013

30AWH units

		Outside air dry-bulb (wet-bulb) temperature, °C																			
		7 (6)							10 (9)							20 (15)					
	LWT	Qh			COP			q	Qh			COP			q	Qh			COP			q
	°C	kW			kW/kW			l/s	kW			kW/kW			l/s	kW			kW/kW			l/s
		Nom	Min	Max	Nom	Min	Max	Nom	Nom	Min	Max	Nom	Min	Max	Nom	Nom	Min	Max	Nom	Min	Max	Nom
30AWH004H--	35	4,07	0,77	4,73	4,15	4,10	3,97	0,196	4,45	0,83	5,14	4,47	4,50	4,38	0,213	5,62	1,05	6,49	5,45	5,59	5,20	0,269
30AWH006H--		5,76	1,08	6,14	4,28	4,49	3,97	0,277	6,32	1,18	6,67	4,63	4,96	4,38	0,302	7,98	1,49	8,42	6,07	6,49	5,73	0,381
30AWH008H--		7,16	1,34	8,00	3,97	4,17	3,44	0,344	7,82	1,46	8,69	4,26	4,56	3,76	0,373	9,87	1,84	10,97	5,46	5,84	4,81	0,472
30AWH012H--		11,86	3,61	13,45	3,95	3,96	3,86	0,569	12,92	3,91	14,61	4,30	4,37	4,26	0,617	16,32	4,94	18,45	5,63	5,72	5,58	0,780
30AWH015H--		14,46	3,18	16,25	4,09	4,17	4,01	0,693	15,74	3,46	17,47	4,48	4,59	4,42	0,752	19,89	4,37	21,65	5,87	6,02	5,80	0,950
30AWH012H--9		12,00	3,40	15,00	4,30	4,39	4,20	0,573	12,86	3,70	16,13	4,68	4,73	4,57	0,614	16,14	4,67	20,24	6,03	6,20	5,89	0,771
30AWH015H--9		15,00	3,44	17,41	4,20	4,25	4,18	0,717	16,13	3,73	18,73	4,57	4,69	4,55	0,771	20,24	4,72	23,49	5,89	6,14	5,86	0,967
30AWH004H--	45	3,87	0,70	4,50	3,26	3,40	3,15	0,186	4,19	0,78	4,84	3,39	3,60	3,33	0,200	5,17	1,00	5,97	4,02	4,27	3,95	0,247
30AWH006H--		5,76	1,06	6,04	3,05	3,24	2,91	0,277	6,24	1,14	6,49	3,18	3,43	3,08	0,298	7,70	1,41	8,20	3,77	4,07	3,66	0,368
30AWH008H--		7,36	1,32	7,92	3,19	3,45	2,84	0,354	8,03	1,44	8,57	3,44	3,74	3,08	0,384	10,02	1,82	10,75	4,34	4,73	3,89	0,479
30AWH012H--		12,91	3,47	12,95	3,03	3,08	3,01	0,547	12,31	3,73	13,92	3,21	3,26	3,18	0,588	15,18	4,60	17,16	3,80	3,86	3,77	0,725
30AWH015H--		13,96	3,07	15,92	3,23	3,29	3,17	0,669	15,05	3,30	17,12	3,40	3,49	3,36	0,719	18,55	4,07	20,35	4,03	4,14	3,99	0,886
30AWH012H--9		11,20	3,10	14,50	3,35	3,33	3,30	0,535	11,97	3,34	15,90	3,40	3,52	3,40	0,572	15,03	4,11	18,92	3,85	4,18	4,03	0,718
30AWH015H--9		14,50	3,07	16,52	3,30	3,29	3,21	0,693	15,90	3,30	18,11	3,40	3,49	3,31	0,760	18,92	4,07	21,55	4,03	4,14	3,92	0,904
30AWH004H--	55	4,10	0,65	4,22	2,71	2,75	2,60	0,196	4,41	0,72	4,52	2,90	2,95	2,84	0,211	5,41	0,95	5,55	3,44	3,50	3,39	0,258
30AWH006H--		5,40	1,02	5,58	2,58	2,78	2,53	0,258	5,98	1,10	6,10	2,72	2,93	2,70	0,286	6,87	1,35	7,05	3,23	3,43	3,18	0,328
30AWH008H--		6,70	1,25	7,46	2,30	2,50	2,12	0,32	7,25	1,35	8,05	2,87	3,07	2,68	0,346	9,05	1,68	10,05	3,49	3,73	3,20	0,432
30AWH012H--		10,27	3,36	11,50	2,50	2,54	2,48	0,49	11,46	3,61	12,35	2,63	2,68	2,63	0,547	13,85	4,42	14,60	3,08	3,13	3,08	0,662
30AWH015H--		11,66	2,78	12,35	2,82	2,87	2,63	0,575	12,70	2,98	13,41	2,97	3,04	2,78	0,607	15,02	3,66	15,76	3,52	3,61	3,31	0,718
30AWH012H--9		11,05	2,81	13,09	2,80	2,90	2,78	0,528	11,88	3,01	14,32	3,02	3,07	2,95	0,568	14,91	3,69	17,13	3,56	3,64	3,50	0,712
30AWH015H--9		12,00	2,78	15,26	2,85	2,87	2,65	0,573	13,07	2,98	16,81	3,02	3,04	2,80	0,624	15,68	3,66	20,02	3,58	3,61	3,33	0,749
30AWH004H--	60	3,83	0,61	4,18	2,48	2,70	2,45	0,183	4,07	0,68	4,44	2,61	2,90	2,58	0,195	4,94	0,91	5,44	3,07	3,45	3,04	0,236
30AWH006H--		5,00	0,93	5,07	2,25	2,41	2,23	0,239	5,32	0,99	5,32	2,37	2,53	2,37	0,254	6,07	1,19	6,07	2,79	2,96	2,79	0,29
30AWH008H--		3,04	1,08	3,70	2,12	2,14	2,10	0,145	3,25	1,15	3,95	2,26	2,28	2,24	0,155	3,95	1,41	4,81	2,71	2,74	2,69	0,189
30AWH012H--		10,19	3,09	11,00	2,09	2,12	2,08	0,487	10,84	3,28	11,25	2,20	2,23	2,20	0,518	11,10	3,95	11,60	2,56	2,60	2,56	0,53
30AWH015H--		10,03	2,52	11,24	2,20	2,23	2,10	0,479	11,25	2,59	11,25	2,30	2,33	2,30	0,537	11,90	3,12	11,90	2,48	2,72	2,48	0,568
30AWH012H--9		10,65	2,54	12,93	2,69	2,70	2,63	0,509	11,58	2,62	13,83	2,81	2,87	2,78	0,553	14,21	3,15	16,36	3,37	3,42	3,32	0,679
30AWH015H--9		12,80	2,52	14,50	2,60	2,68	2,54	0,612	13,69	2,59	15,97	2,75	2,84	2,69	0,654	16,03	3,12	19,02	3,29	3,39	3,21	0,766

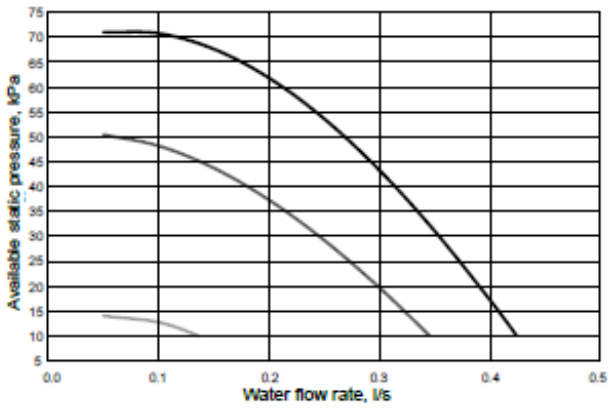
Legend
LWT - Leaving Water Temperature, °C
Qh - Heating Capacity, kW
Nom - Nominal
Min - Minimum
Max - Maximum
COP - Coefficient of Performance
q - Condenser water flow rate, l/s

Application Data
Standard units, refrigerant: R-410A
Condenser entering/leaving water temperature difference: 5 K
Condenser fluid: water
Fouling Factor: 0.m² K/W

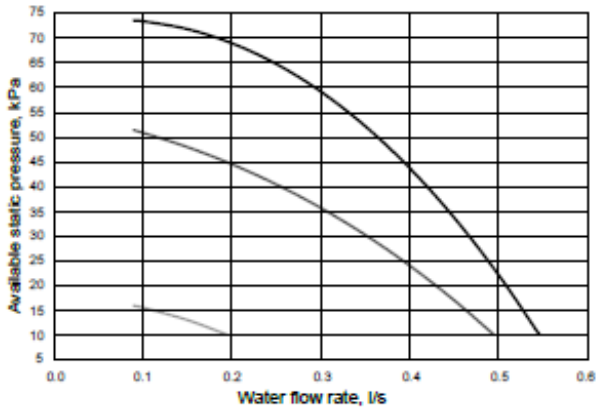
Performance in accordance with EN 14511-3: 2013

AVAILABLE STATIC PRESSURE (UNITS WITH HYDRONIC MODULE)

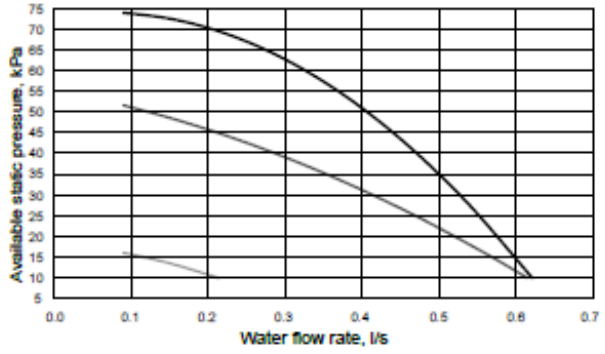
30AWH 004H



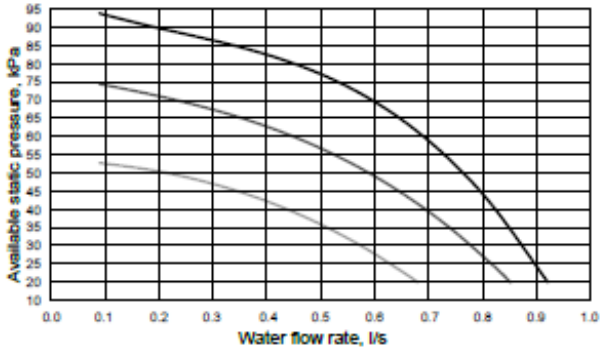
30AWH 006H



30AWH 008H



30AWH 012H + 015H



High speed Medium speed Low speed

61AF PHYSICAL DATA

(sizes 014-019)

(For more technical data refer to the relevant documentation)

PHYSICAL DATA

61AF				014-7	014-9	019-9
Heating						
Standard unit Full load performances *	HA1	Nominal capacity	kW	13,8	13,4	19,9
		COP	kW/kW	3,88	4,14	4,23
	HA2	Nominal capacity	kW	14,0	13,6	19,6
		COP	kW/kW	3,31	3,49	3,45
	HA3	Nominal capacity	kW	14,0	13,6	19,5
		COP	kW/kW	2,89	2,99	2,93
	HA4	Nominal capacity	kW	13,8	13,5	19,8
		COP	kW/kW	2,41	2,47	2,41
Standard unit Seasonal energy efficiency**	HA1	$SCOP_{30/35°C}$	kWh/kWh	3,35	3,57	3,49
		$\eta s\ heat_{30/35°C}$	%	131	140	137
		P_{rated}	kWh/kWh	14	13	13
	HA3	**$SCOP_{47/55°C}$**	**%**	**2,92**	**3,05**	**3,08**
		$\eta s\ heat_{47/55°C}$	**kW**	**114**	**119**	**120**
		P_{rated}		14	13	14
Operating weight(1)						
Standard unit (without hydraulic kit)			kg	159	159	206
Standard unit (plus hydraulic module option)			kg	169	169	216
Sound levels						
Sound power level (2)			dB(A)	71	71	72
Sound pressure level at 10 m (3)			dB(A)	40	40	41
Dimensions						
Length			mm	1103	1103	1135
Depth			mm	333	333	559
Height			mm	1278	1278	1579
Compressor				One, hermetic scroll, 48,3 r/s, one capacity stage		
Refrigerant				R-407C		
Charge			kg	4,0	4,0	8,0
			$teqCO_2$	7,1	7,1	14,2
Capacity control				Pro-Dialog+		
Minimum capacity			%	100	100	100
Condenser				Direct-expansion plate heat exchanger		
Water volume			l	3,7	3,7	3,9
Max. water-side operating pressure with and without hydraulic module			kPa	300	300	400
Fan				Two, axial twin-speed fans		
Total air flow (high speed)			l/s	2050	2050	2000
Speed			r/s	11,7	11,7	14,5
Evaporator				Grooved copper tubes and aluminium fins		
Pump				Variable speed pump		
Water connections with/without hydraulic module				Victaulic		
Connections			inch	1 female	1 female	1 male in/1-1/4 male out
Outside diameter			mm	25	25	25 in/32 out
Chassis paint colour				Colour code: RAL 7035		

* In accordance with standard EN14511-3:2013

** In accordance with standard EN14825:2016, average climate

HA1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, outside air temperature tdb/twb = 7°C db/6°C wb, evaporator fouling factor 0 m².K/W

HA2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, outside air temperature tdb/twb= 7°C db/6°C wb, evaporator fouling factor 0 m².K/W

HA3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47°C/55°C, outside air temperature tdb/twb= 7°C db/6°C wb, evaporator fouling factor 0 m².K/W

HA4 Heating mode conditions: Water heat exchanger water entering/leaving temperature 55°C/65°C, outside air temperature tdb/twb= 7°C db/6°C wb, evaporator fouling factor 0 m².K/W

$\eta s\ heat_{30/35°C}$ & $SCOP_{30/35°C}$ Values calculated in accordance with EN14825:2016

$\eta s\ heat_{47/55°C}$ & $SCOP_{47/55°C}$ Bold values compliant to Ecodesign regulation: (EU) No 813/2013 for Heat Pump application

(1) Weight shown is a guideline only. Please refer to the unit nameplate

(2) In dB ref=10^{-12} W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.

(3) In dB ref 20µPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

Eurovent certified values

HEATING CAPACITIES IN ACCORDANCE WITH EN14511-3 : 2013

61AF 014-019

		Outside air dry-bulb (wet-bulb) temperature, °C											
		-20 (-20,5) / 64.2% RH				-15 (-16) / 52.2% RH				-10 (-11) / 66.6% RH			
	LWT	Qh	COP	q	Δp	Qh	COP	q	Δp	Qh	COP	q	Δp
	°C	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa
014-7	30	6,63	2,23	0,30	4,39	7,84	2,55	0,36	5,85	8,70	2,78	0,42	7,68
014-9		6,22	2,37	0,28	3,94	7,43	2,74	0,34	5,34	8,30	2,99	0,40	7,10
019-9		9,82	2,45	0,45	6,49	11,45	2,80	0,52	8,53	12,02	2,93	0,61	11,04
014-7	35	6,64	2,10	0,30	4,30	7,84	2,40	0,36	5,72	8,69	2,60	0,42	7,50
014-9		6,24	2,22	0,29	3,88	7,44	2,54	0,34	5,23	8,30	2,76	0,40	6,94
019-9		9,74	2,28	0,44	6,26	11,35	2,58	0,52	8,22	12,01	2,72	0,60	10,63
014-7	40	6,66	1,98	0,30	4,23	7,86	2,24	0,36	5,62	8,69	2,42	0,42	7,34
014-9		6,28	2,07	0,29	3,83	7,46	2,36	0,34	5,15	8,30	2,55	0,40	6,79
019-9		9,70	2,12	0,44	6,08	11,30	2,39	0,52	7,98	12,05	2,52	0,60	10,31
014-7	45	6,68	1,87	0,31	4,17	7,87	2,11	0,36	5,53	8,68	2,25	0,42	7,18
014-9		6,33	1,94	0,29	3,80	7,49	2,20	0,34	5,09	8,31	2,36	0,40	6,67
019-9		9,71	1,98	0,45	5,97	11,31	2,21	0,52	7,83	12,14	2,33	0,60	10,09
014-7	50	6,73	1,76	0,31	4,15	7,91	1,97	0,36	5,46	8,75	2,11	0,42	7,07
014-9		6,41	1,81	0,29	3,81	7,55	2,04	0,35	5,05	8,40	2,19	0,41	6,59
019-9		9,78	1,85	0,45	5,94	11,39	2,05	0,52	7,77	12,26	2,16	0,61	9,98
014-7	55	6,79	1,68	0,20	1,88	7,95	1,87	0,23	2,46	8,82	2,01	0,27	3,17
014-9		6,49	1,72	0,19	1,74	7,61	1,93	0,22	2,29	8,48	2,07	0,26	2,96
019-9		9,88	1,75	0,28	2,65	11,49	1,94	0,33	3,46	12,40	2,04	0,38	4,43
014-7	60	6,93	1,59	0,16	1,32	8,07	1,76	0,19	1,71	8,94	1,89	0,21	2,17
014-9		6,62	1,62	0,15	1,22	7,72	1,80	0,18	1,59	8,60	1,94	0,21	2,03
019-9		10,07	1,65	0,23	1,84	11,69	1,81	0,27	2,39	12,64	1,91	0,31	3,04
014-7	65	7,12	1,50	0,16	1,36	8,24	1,65	0,19	1,74	9,13	1,77	0,22	2,19
014-9		6,79	1,53	0,16	1,25	7,87	1,69	0,18	1,61	8,76	1,81	0,21	2,04
019-9		10,36	1,55	0,24	1,90	11,99	1,69	0,28	2,46	13,00	1,78	0,32	3,11

61AF 014-019

		Outside air dry-bulb (wet-bulb) temperature, °C											
		-7 (-8) / 72.5% RH				2 (1) / 83.8% RH				7 (6) / 86.8% RH			
	LWT	Qh	COP	q	Δp	Qh	COP	q	Δp	Qh	COP	q	Δp
	°C	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa
014-7	30	9,03	2,87	0,46	8,99	10,22	3,85	0,60	14,10	13,72	4,16	0,66	16,23
014-9		8,66	3,08	0,44	8,37	9,89	4,14	0,58	13,34	13,33	4,50	0,64	15,47
019-9		11,82	2,90	0,66	12,80	13,04	3,85	0,85	19,62	20,21	4,65	0,97	24,56
014-7	35	9,01	2,67	0,46	8,75	10,16	3,56	0,60	13,66	13,77	3,88	0,66	15,98
014-9		8,64	2,84	0,44	8,16	9,84	3,78	0,58	12,95	13,41	4,14	0,64	15,28
019-9		11,92	2,71	0,66	12,33	13,14	3,58	0,84	18,78	19,93	4,23	0,95	23,45
014-7	40	9,00	2,48	0,46	8,56	10,10	3,27	0,60	13,25	13,85	3,59	0,66	15,80
014-9		8,63	2,62	0,44	7,97	9,79	3,45	0,58	12,57	13,50	3,81	0,65	15,12
019-9		12,06	2,52	0,66	11,94	13,28	3,31	0,83	18,10	19,72	3,83	0,94	22,53
014-7	45	8,98	2,30	0,46	8,36	10,05	3,00	0,60	12,87	13,96	3,31	0,67	15,68
014-9		8,63	2,41	0,44	7,81	9,74	3,14	0,58	12,21	13,59	3,49	0,65	15,00
019-9		12,24	2,35	0,65	11,67	13,49	3,06	0,83	17,62	19,57	3,45	0,94	21,81
014-7	50	9,09	2,16	0,46	8,19	9,99	2,76	0,59	12,50	14,05	3,07	0,68	15,57
014-9		8,75	2,24	0,45	7,68	9,70	2,86	0,58	11,89	13,70	3,20	0,66	14,92
019-9		12,41	2,18	0,66	11,52	13,76	2,83	0,83	17,31	19,55	3,11	0,94	21,36
014-7	55	9,19	2,07	0,29	3,66	9,92	2,60	0,37	5,54	13,97	2,89	0,42	6,91
014-9		8,86	2,13	0,28	3,44	9,65	2,68	0,36	5,28	13,60	2,99	0,41	6,60
019-9		12,60	2,07	0,41	5,10	14,01	2,71	0,52	7,61	19,52	2,93	0,59	9,37
014-7	60	9,35	1,95	0,23	2,50	9,89	2,40	0,30	3,73	13,87	2,66	0,34	4,62
014-9		9,02	2,00	0,23	2,35	9,62	2,46	0,29	3,56	13,53	2,73	0,33	4,43
019-9		12,89	1,94	0,34	3,49	14,37	2,53	0,42	5,17	19,61	2,67	0,47	6,34
014-7	65	9,57	1,82	0,24	2,51	9,90	2,18	0,30	3,68	13,83	2,41	0,34	4,53
014-9		9,21	1,86	0,23	2,35	9,62	2,23	0,29	3,50	13,48	2,47	0,33	4,33
019-9		13,29	1,80	0,34	3,56	14,83	2,34	0,43	5,21	19,82	2,41	0,48	6,35

Legend

LWT	Leaving water temperature, °C
Qh	Heating capacity, kW
COP	Coefficient of performance, kW/kW
q	Condenser water flow rate, l/s
Δp	Condenser pressure drop, kPa
*	Lower temperature difference required for selected LWT

Application data

Standard units, refrigerant: R-407C
Condenser entering/leaving water temperature difference: 5 K for LWT values <55°C
Condenser entering/leaving water temperature difference: 8 K for LWT values = 55°C
Condenser entering/leaving water temperature difference: 10 K for LWT values >55°C
Condenser fluid: water
Fouling factor: 0 (m² K)/W
Performances in accordance with EN14511-3:2013.

HEATING CAPACITIES IN ACCORDANCE WITH EN14511-3 : 2011

61AF 014-019		Outside air dry-bulb (wet-bulb) temperature, °C											
		12 (11) / 88.9% RH				15 (14) / 89.9% RH				20 (19) / 91.2% RH			
	LWT	Qh	COP	q	Δp	Qh	COP	q	Δp	Qh	COP	q	Δp
	°C	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa
014-7	30	15,01	4,47	0,72	18,90	15,82	4,65	0,76	20,64	17,17	4,94	0,82	23,68
014-9		14,60	4,85	0,70	18,03	15,39	5,07	0,74	19,71	16,75	5,42	0,80	22,73
019-9		22,00	4,98	1,05	28,43	22,28	5,03	1,06	29,04	22,46	5,07	1,07	29,46
014-7	35	15,02	4,15	0,72	18,48	15,81	4,31	0,76	20,17	17,19	4,59	0,82	23,21
014-9		14,62	4,45	0,70	17,68	15,41	4,64	0,74	19,31	16,76	4,96	0,80	22,24
019-9		22,01	4,58	1,05	27,83	22,59	4,68	1,08	29,10	22,77	4,72	1,09	29,51
014-7	40	15,05	3,83	0,72	18,16	15,83	3,98	0,76	19,78	17,19	4,23	0,82	22,72
014-9		14,66	4,07	0,70	17,38	15,43	4,24	0,74	18,95	16,76	4,52	0,80	21,78
019-9		22,09	4,19	1,06	27,40	22,91	4,32	1,10	29,18	23,17	4,36	1,11	29,75
014-7	45	15,11	3,52	0,73	17,91	15,88	3,65	0,76	19,49	17,22	3,88	0,83	22,33
014-9		14,71	3,72	0,71	17,13	15,47	3,87	0,74	18,65	16,78	4,12	0,81	21,39
019-9		22,08	3,80	1,06	26,84	23,06	3,93	1,11	28,93	23,65	4,01	1,13	30,22
014-7	50	15,15	3,24	0,73	17,66	15,92	3,36	0,77	19,21	17,25	3,55	0,83	21,99
014-9		14,77	3,39	0,71	16,93	15,53	3,52	0,75	18,42	16,83	3,74	0,81	21,08
019-9		21,96	3,40	1,06	26,10	23,29	3,56	1,12	28,89	24,24	3,67	1,16	30,95
014-7	55	15,16	3,08	0,46	7,93	15,90	3,19	0,48	8,60	17,22	3,39	0,52	9,83
014-9		14,81	3,20	0,45	7,62	15,52	3,33	0,47	8,25	16,81	3,55	0,51	9,44
019-9		21,88	3,21	0,66	11,41	23,38	3,39	0,71	12,80	24,52	3,52	0,74	13,89
014-7	60	15,26	2,86	0,37	5,43	15,95	2,96	0,39	5,85	17,25	3,13	0,42	6,68
014-9		14,93	2,96	0,36	5,23	15,59	3,06	0,38	5,63	16,86	3,26	0,41	6,42
019-9		21,94	2,93	0,53	7,69	23,41	3,08	0,57	8,61	25,05	3,25	0,61	9,68
014-7	65	15,45	2,62	0,37	5,46	16,09	2,70	0,39	5,84	17,35	2,85	0,42	6,63
014-9		15,11	2,69	0,37	5,25	15,73	2,78	0,38	5,62	16,95	2,95	0,41	6,38
019-9		22,12	2,62	0,54	7,68	23,56	2,75	0,57	8,57	25,56	2,93	0,62	9,87

61AF 014-019		Outside air dry-bulb (wet-bulb) temperature, °C											
		25 (24) / 92.1% RH				30 (29) / 92.9% RH				35 (34) / 83.8% RH			
	LWT	Qh	COP	q	Δp	Qh	COP	q	Δp	Qh	COP	q	Δp
	°C	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa	kW	kW/kW	l/s	kPa
014-7	30	17,83	5,08	0,85	25,23	18,49	5,22	0,88	26,83	19,16	5,35	0,91	28,49
014-9		17,40	5,60	0,83	24,23	18,06	5,76	0,86	25,78	18,71	5,93	0,89	27,38
019-9		22,64	5,11	1,08	29,87	22,83	5,15	1,09	30,29	23,01	5,19	1,10	30,71
014-7	35	17,96	4,74	0,86	24,99	18,63	4,87	0,89	26,57	19,30	5,00	0,92	28,19
014-9		17,56	5,15	0,84	24,06	18,22	5,30	0,87	25,59	18,87	5,45	0,90	27,16
019-9		22,96	4,75	1,10	29,92	23,14	4,79	1,11	30,34	23,33	4,82	1,11	30,75
014-7	40	18,14	4,40	0,87	24,87	18,80	4,52	0,90	26,42	19,47	4,63	0,93	28,02
014-9		17,74	4,73	0,85	23,97	18,40	4,86	0,88	25,47	19,05	5,00	0,91	27,02
019-9		23,35	4,39	1,12	30,17	23,53	4,43	1,13	30,58	23,72	4,46	1,14	30,99
014-7	45	18,35	4,06	0,88	24,87	19,02	4,16	0,91	26,41	19,69	4,27	0,94	27,99
014-9		17,95	4,33	0,86	23,95	18,60	4,45	0,89	25,44	19,26	4,57	0,92	26,98
019-9		23,83	4,04	1,14	30,63	24,02	4,07	1,15	31,04	24,21	4,09	1,16	31,46
014-7	50	18,61	3,74	0,89	24,98	19,28	3,83	0,93	26,51	19,95	3,92	0,96	28,09
014-9		18,17	3,96	0,87	24,00	18,85	4,07	0,91	25,52	19,51	4,17	0,94	27,04
019-9		24,43	3,69	1,17	31,36	24,61	3,72	1,18	31,78	24,80	3,74	1,19	32,20
014-7	55	18,59	3,58	0,56	11,18	19,37	3,69	0,58	11,99	20,04	3,78	0,60	12,69
014-9		18,14	3,76	0,55	10,73	18,95	3,90	0,57	11,55	19,60	4,00	0,59	12,23
019-9		24,70	3,55	0,75	14,08	24,89	3,57	0,75	14,26	25,07	3,60	0,76	14,44
014-7	60	18,61	3,31	0,45	7,59	19,61	3,44	0,47	8,29	20,28	3,52	0,49	8,78
014-9		18,17	3,45	0,44	7,29	19,20	3,61	0,46	8,00	19,85	3,70	0,48	8,47
019-9		25,33	3,29	0,61	9,87	25,51	3,31	0,62	9,99	25,70	3,33	0,62	10,12
014-7	65	18,68	3,01	0,45	7,52	19,97	3,16	0,48	8,41	20,64	3,23	0,50	8,89
014-9		18,25	3,12	0,44	7,23	19,56	3,29	0,47	8,13	20,21	3,37	0,49	8,59
019-9		26,24	2,99	0,64	10,32	26,43	3,01	0,64	10,45	26,62	3,02	0,65	10,58

Legend

LWT	Leaving water temperature, °C
Qh	Heating capacity, kW
COP	Coefficient of performance, kW/kW
q	Condenser water flow rate, l/s
Δp	Condenser pressure drop, kPa

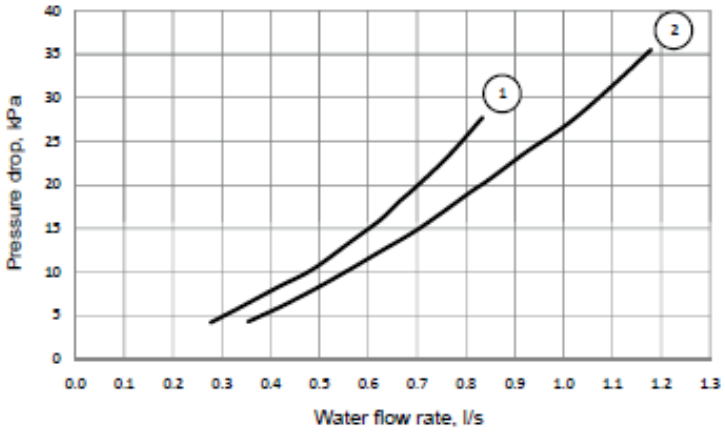
Application data

Standard units, refrigerant: R-407C
Condenser entering/leaving water temperature difference: 5 K for LWT values <55°C
Condenser entering/leaving water temperature difference: 8 K for LWT values = 55°C
Condenser entering/leaving water temperature difference: 10 K for LWT values >55°C
Condenser fluid: water
Fouling factor: 0 (m² K)/W
Performances in accordance with EN14511-3:2013

AVAILABLE STATIC SYSTEM PRESSURE

Plate heat exchanger pressure drop - for pure water at 20°C

61AF 014-019



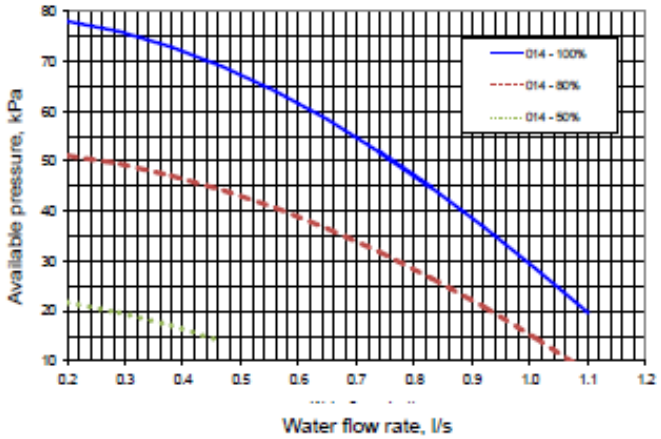
① 61AF 014
② 61AF 019

Available system pressure for units with pump

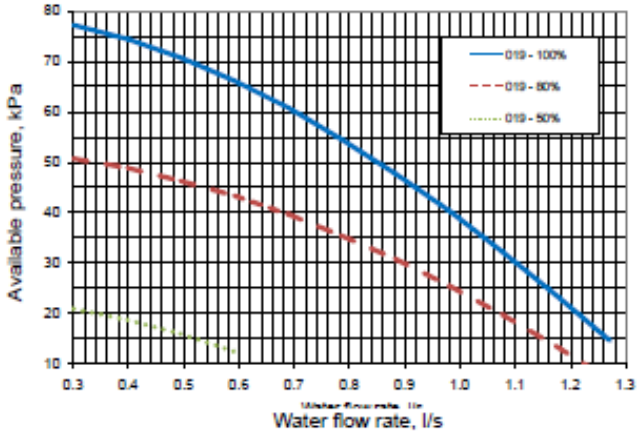
The available pressure curves for the 61AF units are given for the maximum variable speed.
Data applicable for:

- Fresh water 20 °C
- In case of use of glycol, the maximum water flow is reduced.

61AF 014



61AF 019



NOTES