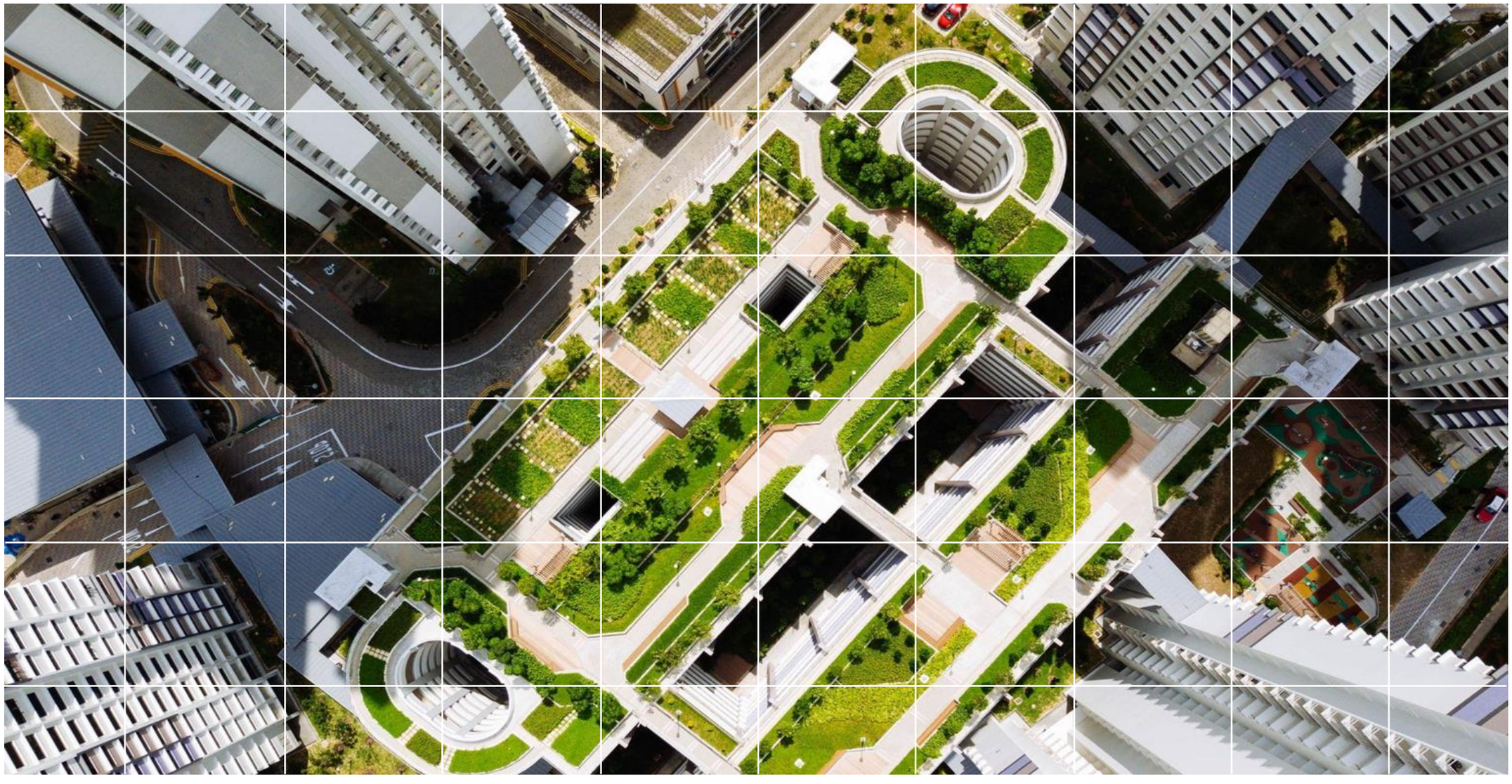
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES



# QVANTUM QA50 - HYDRAULIC SCHEMATICS

Qvantum Hydraulic Schematics

QHS - QA50_2642-B

D100069

Subject to possible printing errors.

# QVANTUM QA50 HEAT PUMPS - HYDRAULIC SCHEMATICS

The following QVANTUM hydraulic schematics are applicable to QVANTUM heat pumps with QC-Pro controller.
Detailed information can be found in the relevant product documentation.



QA50

## AIR SOURCE HEAT PUMP SYSTEM

- The installer is responsible for correct placement of the outdoor unit with regards to air flow and correct drainage during defrosting.

- The hydraulic schematics include controls for heating, cooling and DHW. Dimensioning of pumps, buffer tank volume, DHW cylinder volume, control valves etc. needs to be done by the installer.

- The control system QC Pro is equipped with a multiplexer for heat pump capacity control and communication and can handle up to 4 No. of heat pump units for heating, cooling and DHW, as shown in the hydraulic schematics. For higher thermal capacities up to 8 No. heat pumps units the QC Pro is equipped with an additional multiplexer for heat pump units 5-8. Ïn systems with 5-8 No. heat pump units the units are only allowed to do heating or cooling, as shown in the hydraulic schematics. For higher thermal capacities than 8 No. heat pump units please contact Qvantum.

- DHW cylinders, regardless of type (thermal store, calorifiers etc.), should be installed with reverse return connections, as shown in hydraulic schematics for multiple heat pumps, to ensure equal temperature in all cylinders.

- Specific components such as, but not limited to, dosing pot, commissioning set, air admittance valve, lock shield valve, drain cock, binder test point, gauge etc. are not included in the hydraulic schematics but are installed when required.
Dimensioning needs to be done by the installer.

- For systems with a single heat pump a 300 litre heating buffertank is required for defrosting purposes. For systems with 2 No. heat pumps or more 200 litres of buffer is required per added heat pump.

- Red marks * in the schematics show components that are supplied by Qvantum. Blue marks * in the schematics show components that can be supplied by Qvantum.
If a component is not supplied by Qvantum the installer needs to follow Qvantums specifications in order to ensure compliance with the control system.

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HEAT PUMPS FOR SUSTAINABLE CITIES

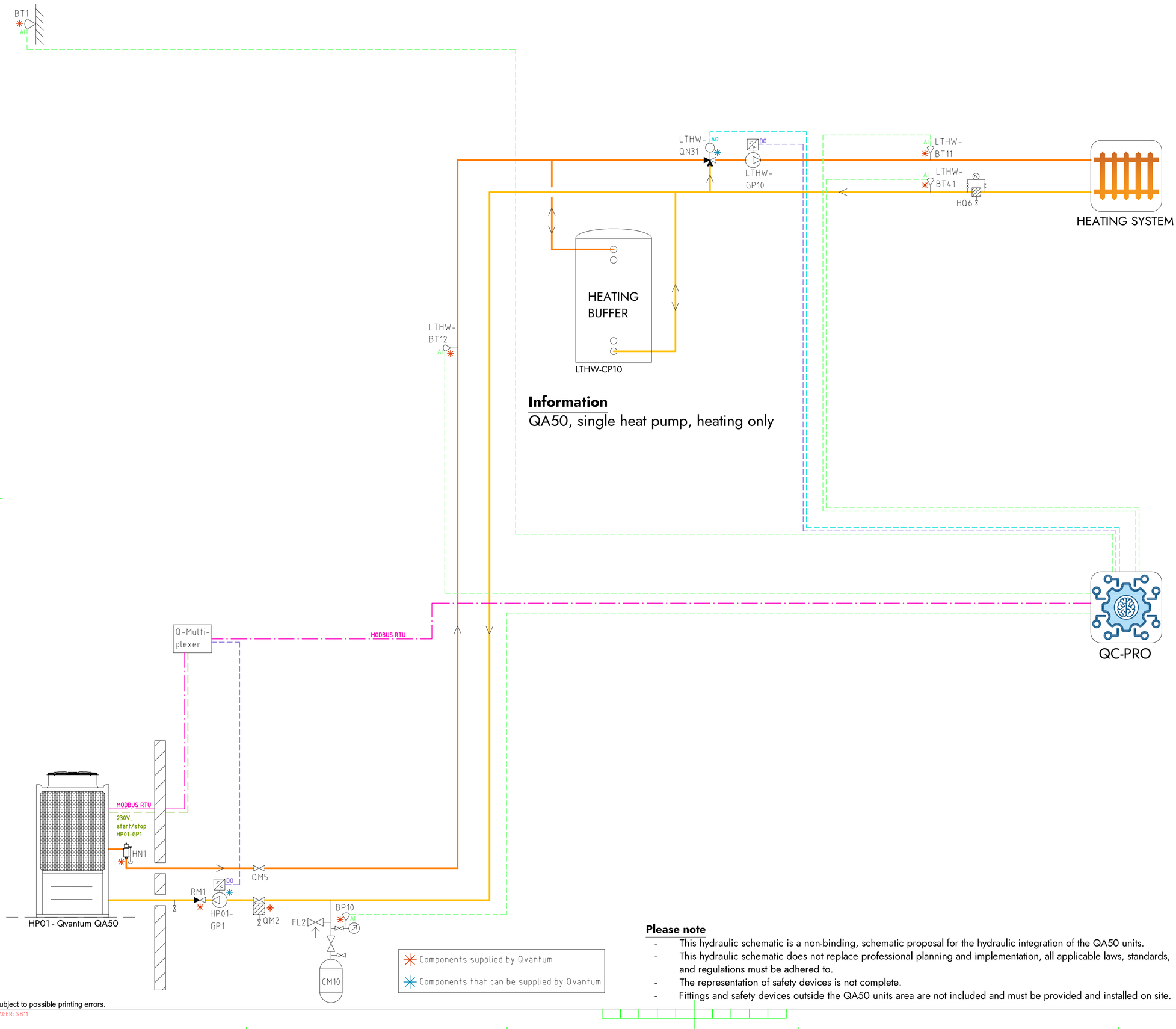
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with a single heat pump

Subject to possible printing errors.

Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

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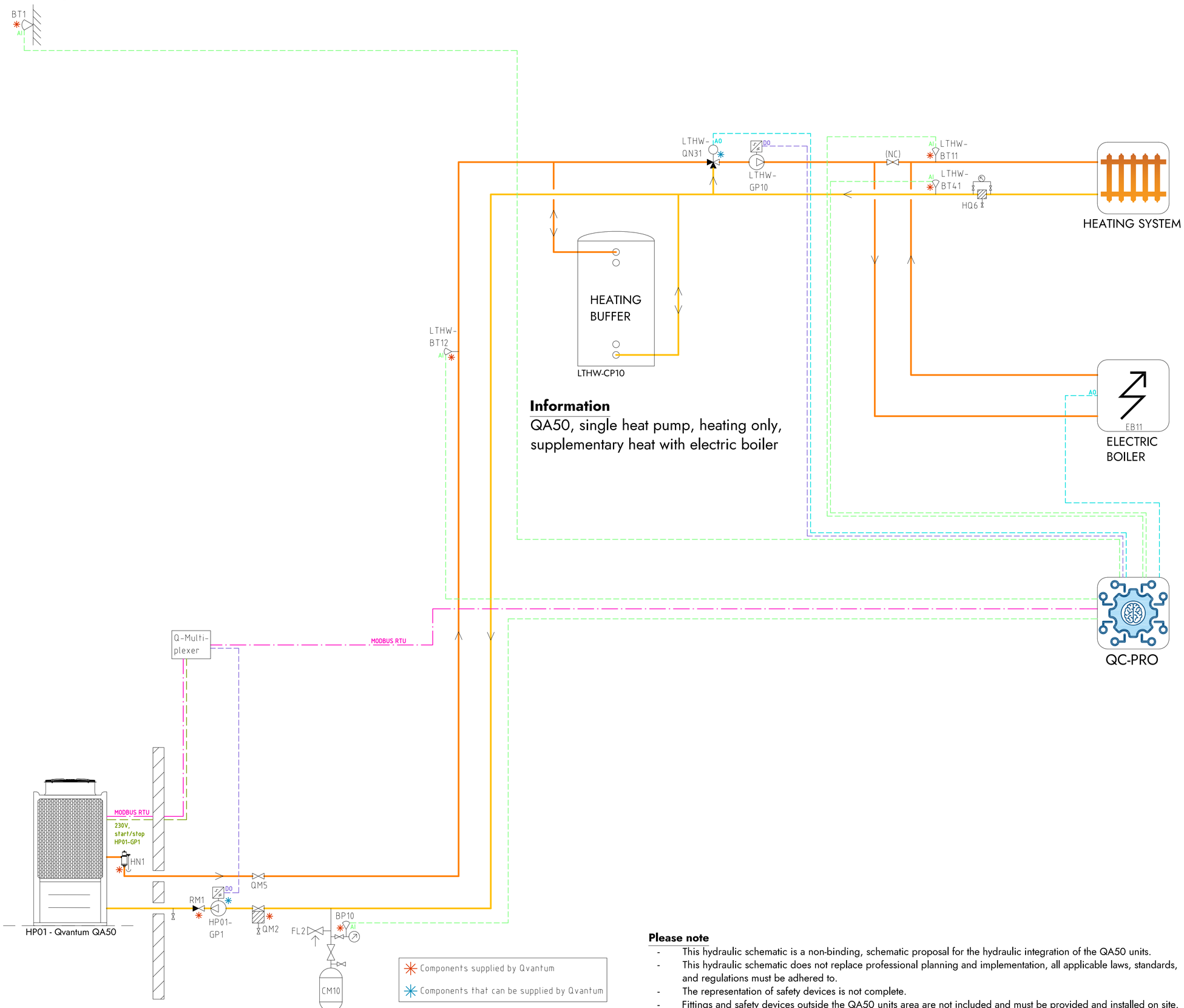
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating only, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

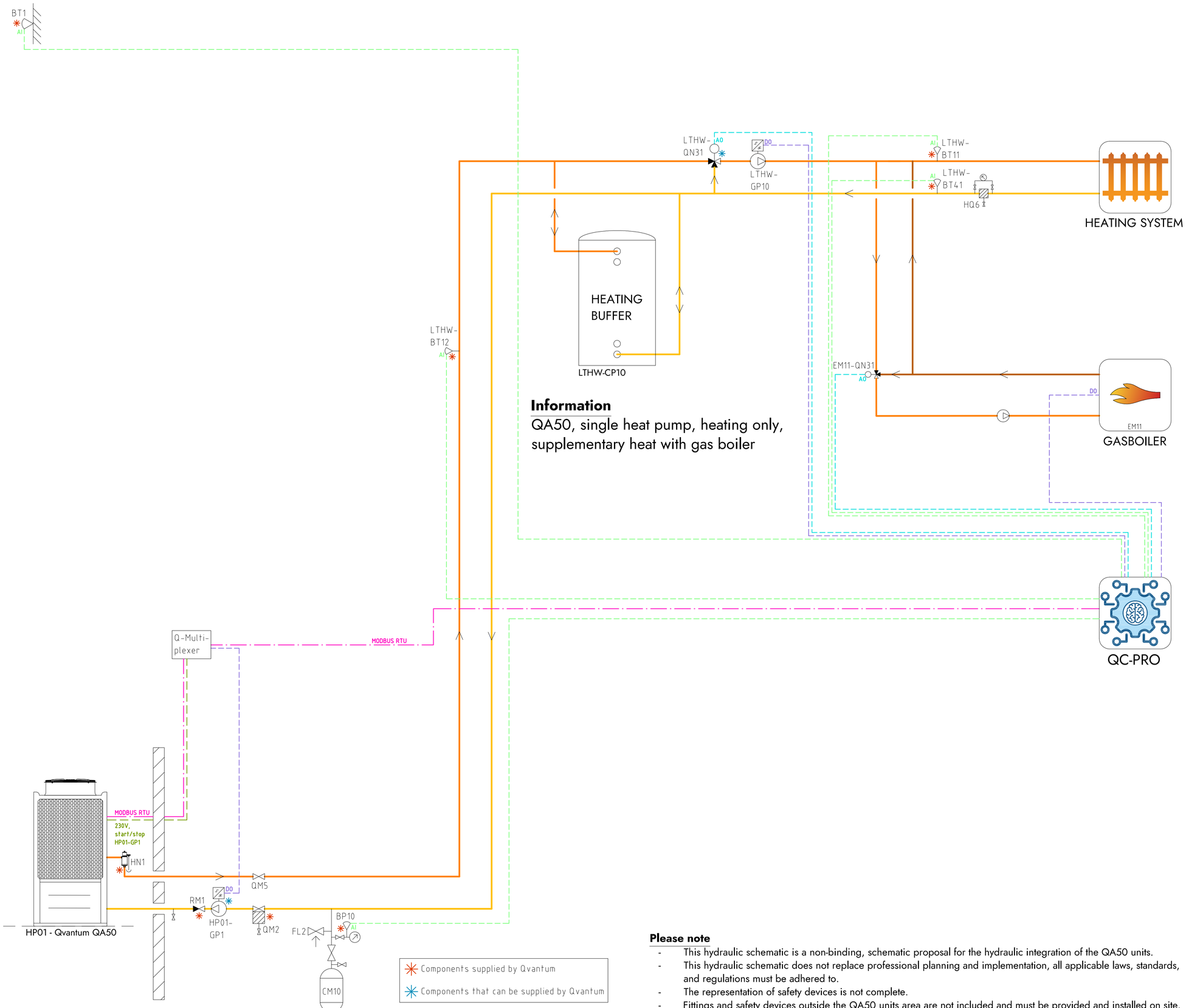
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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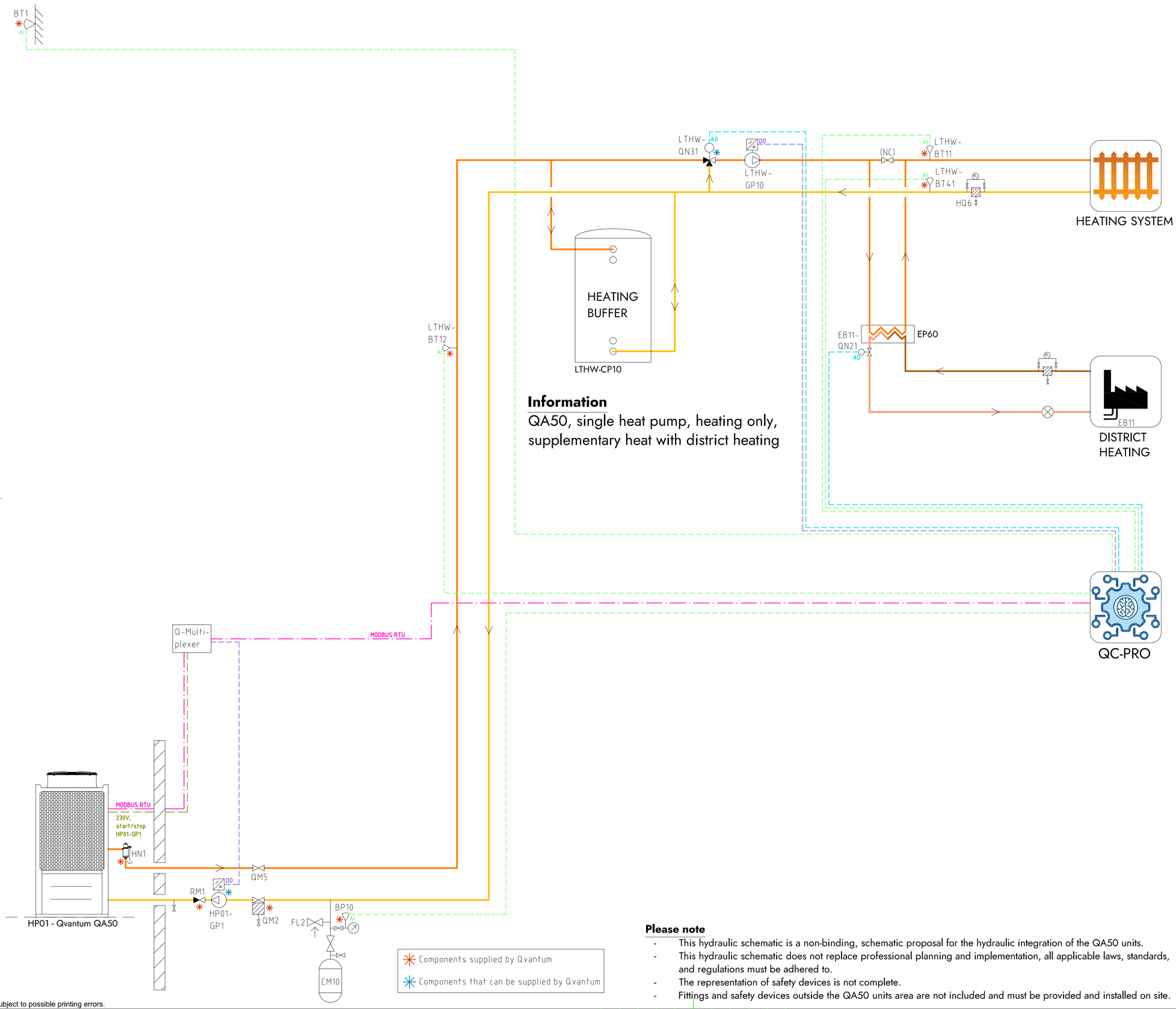
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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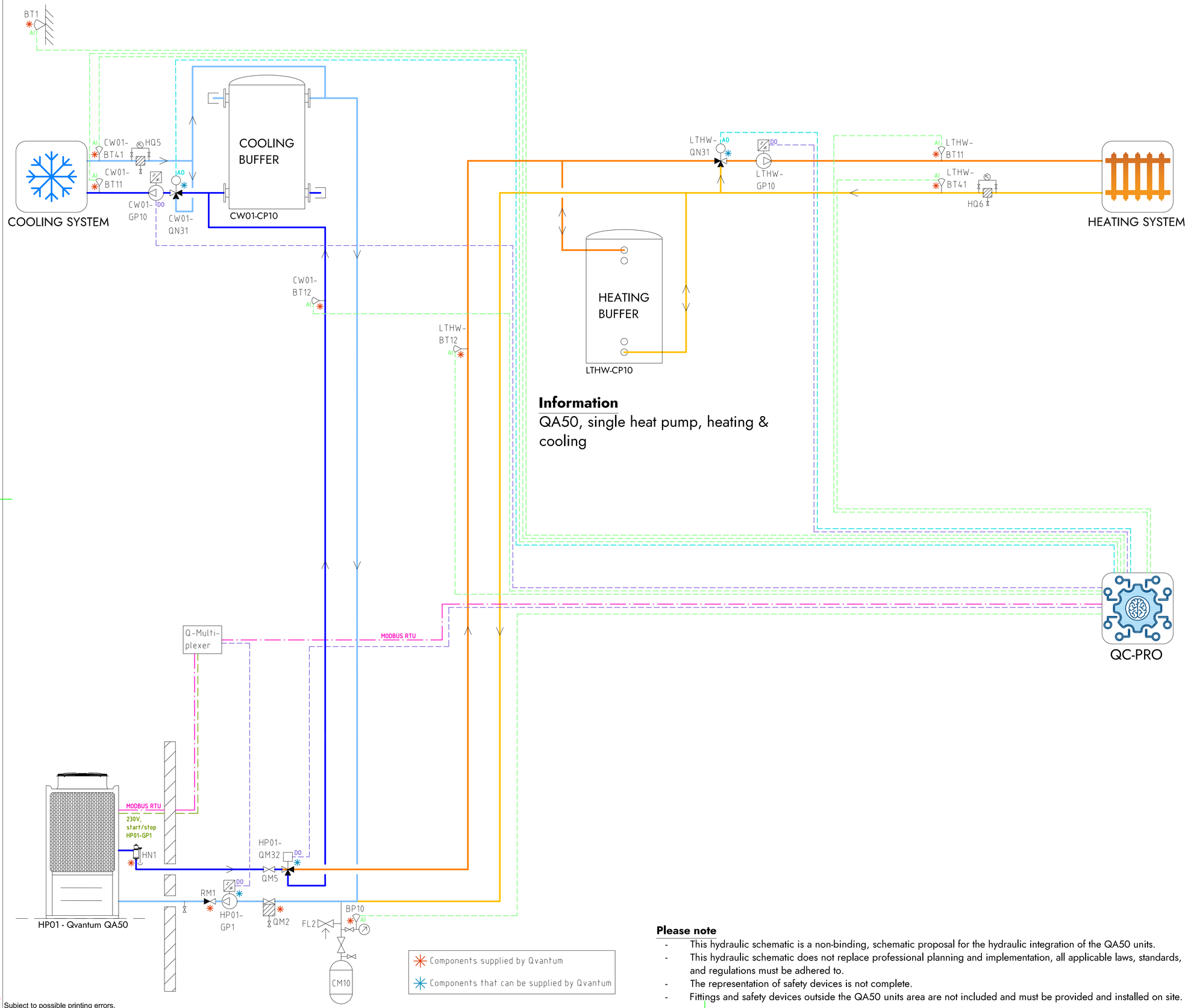
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & cooling

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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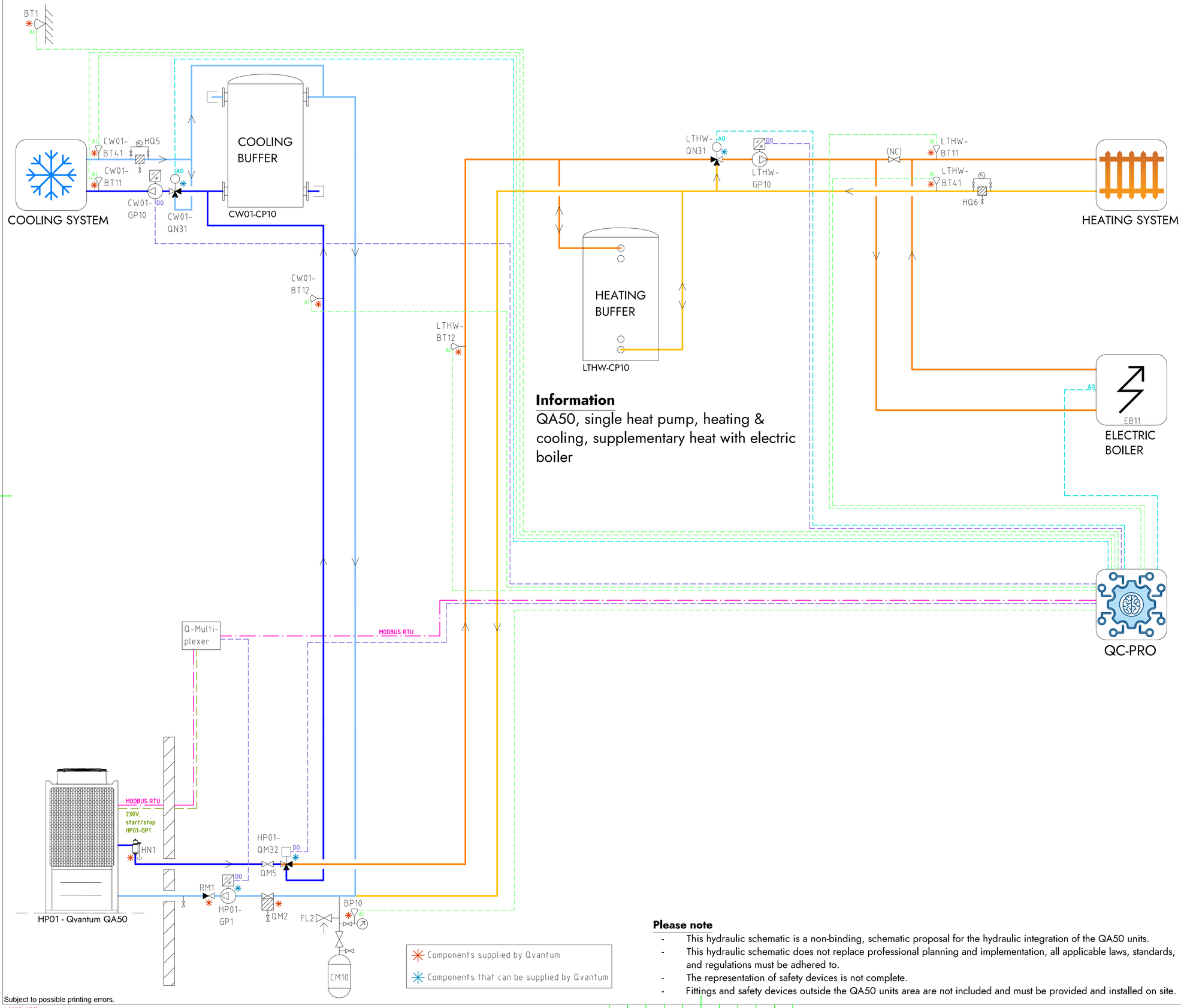
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & cooling, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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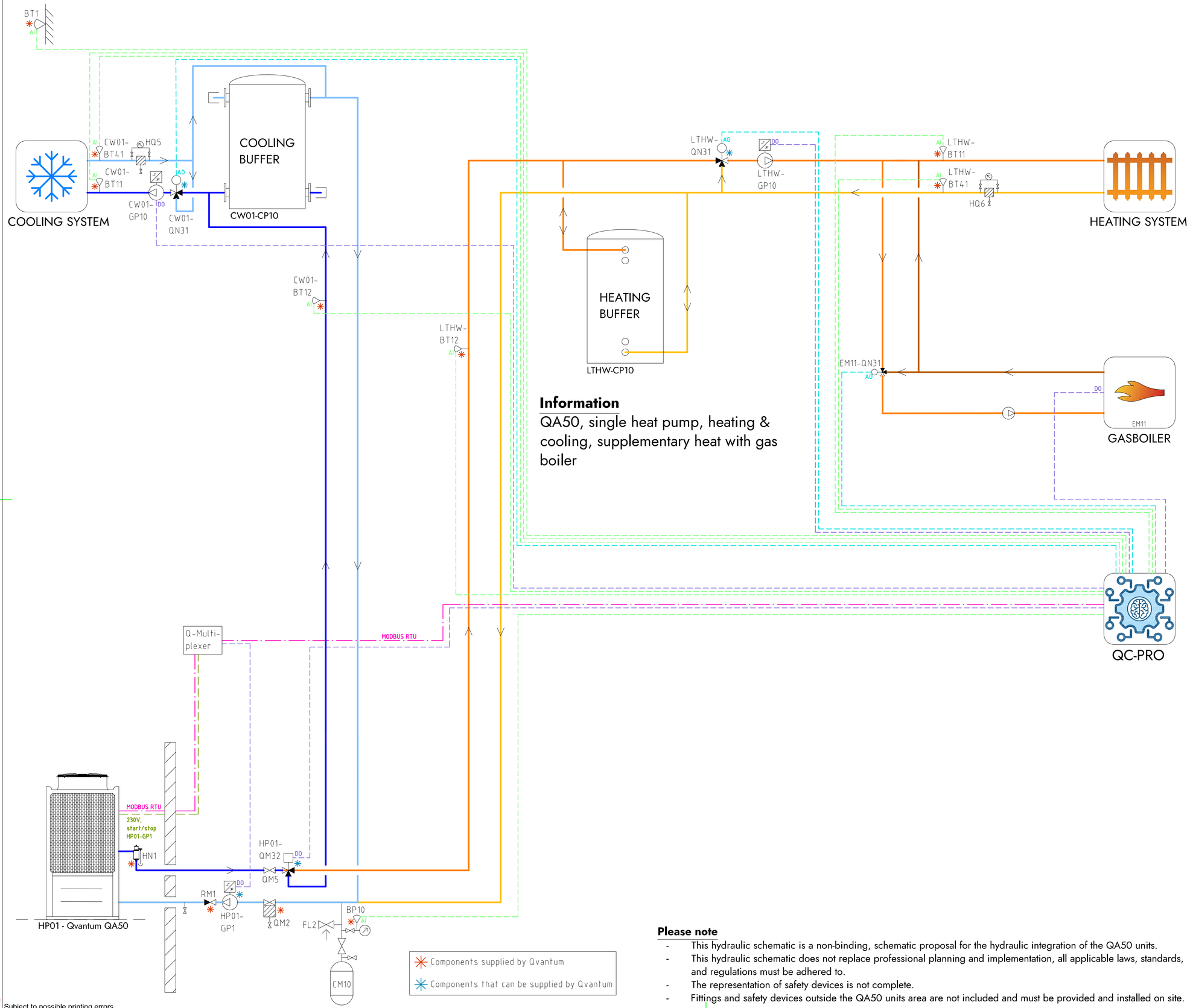
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & cooling, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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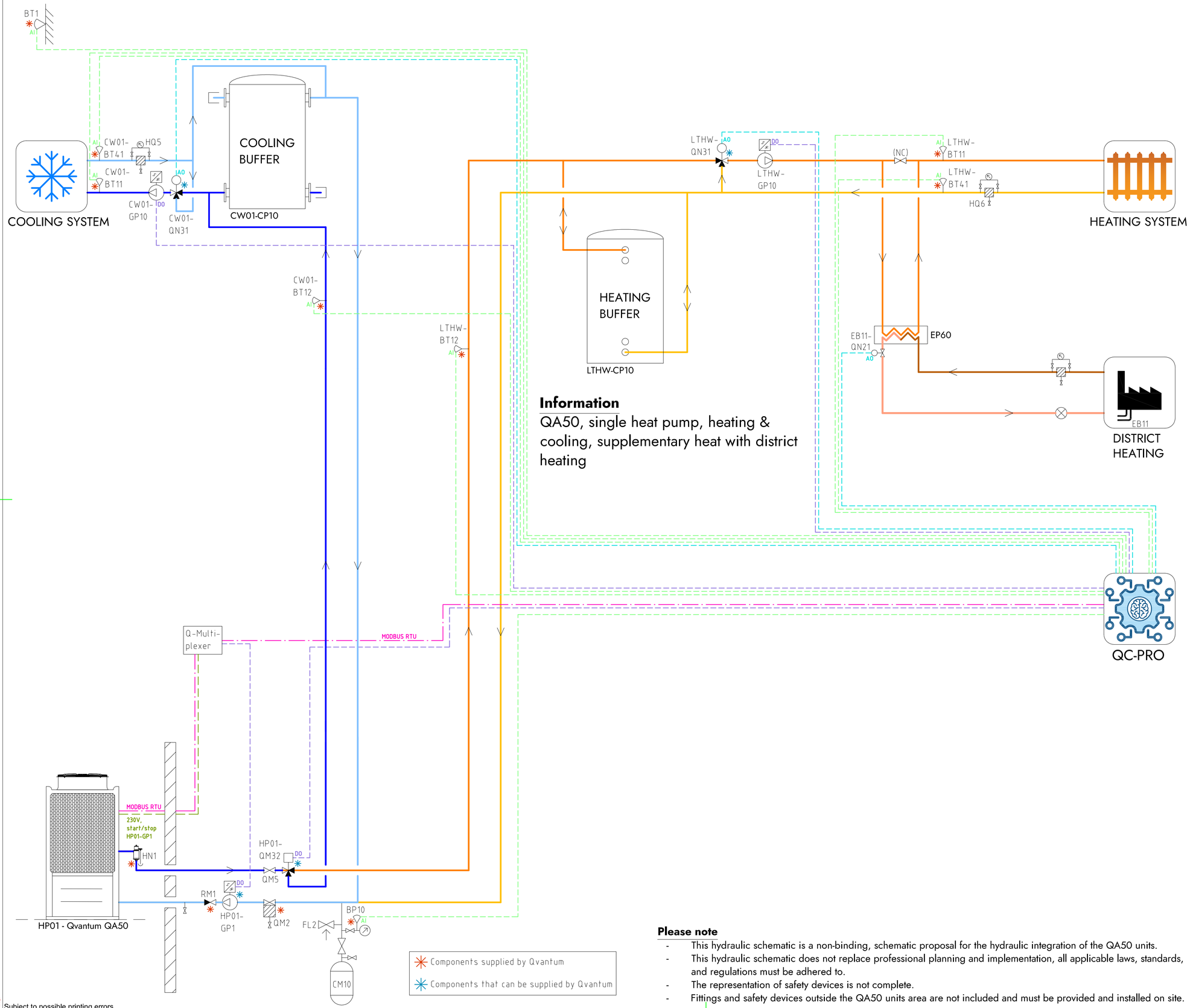
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & cooling, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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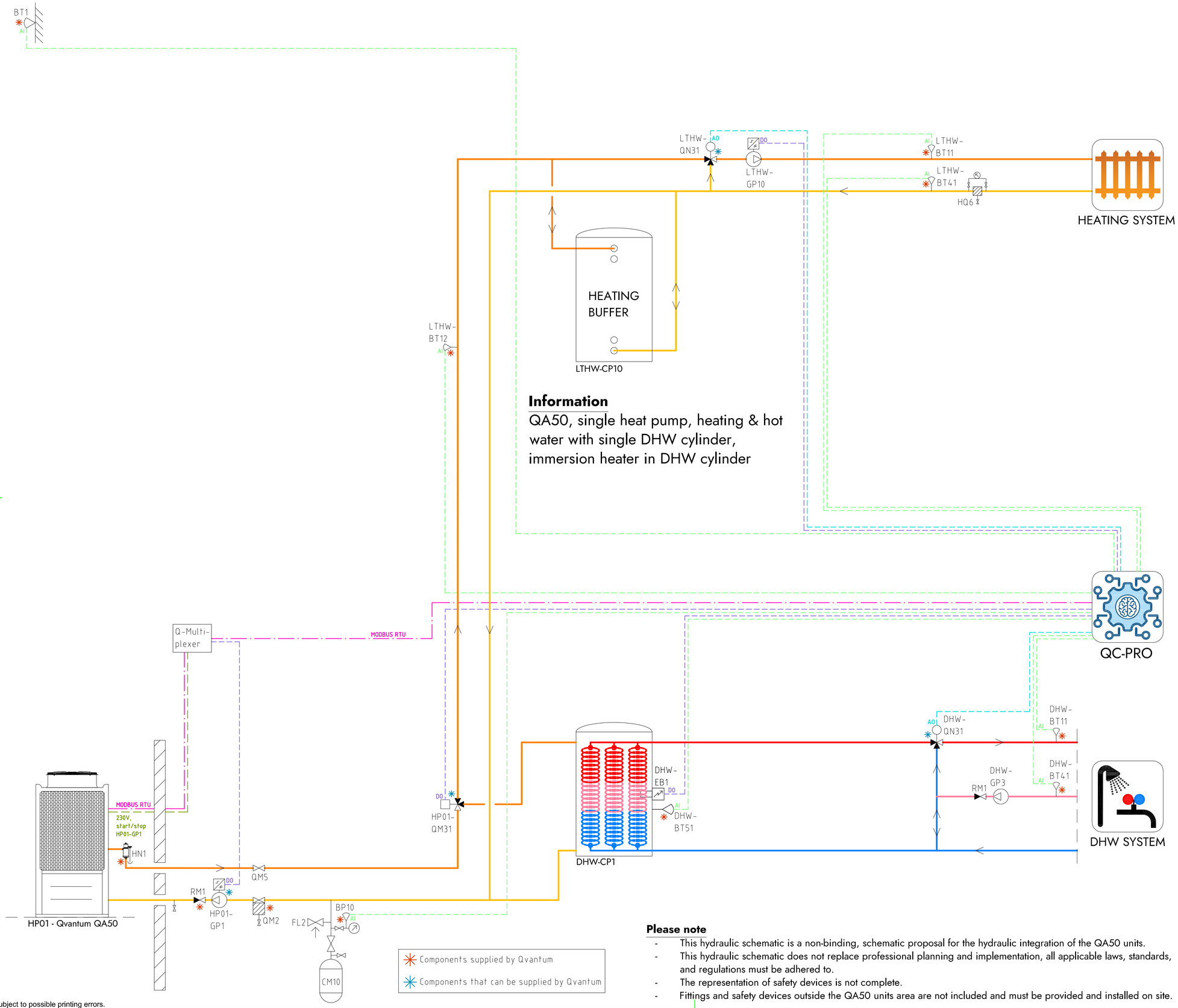
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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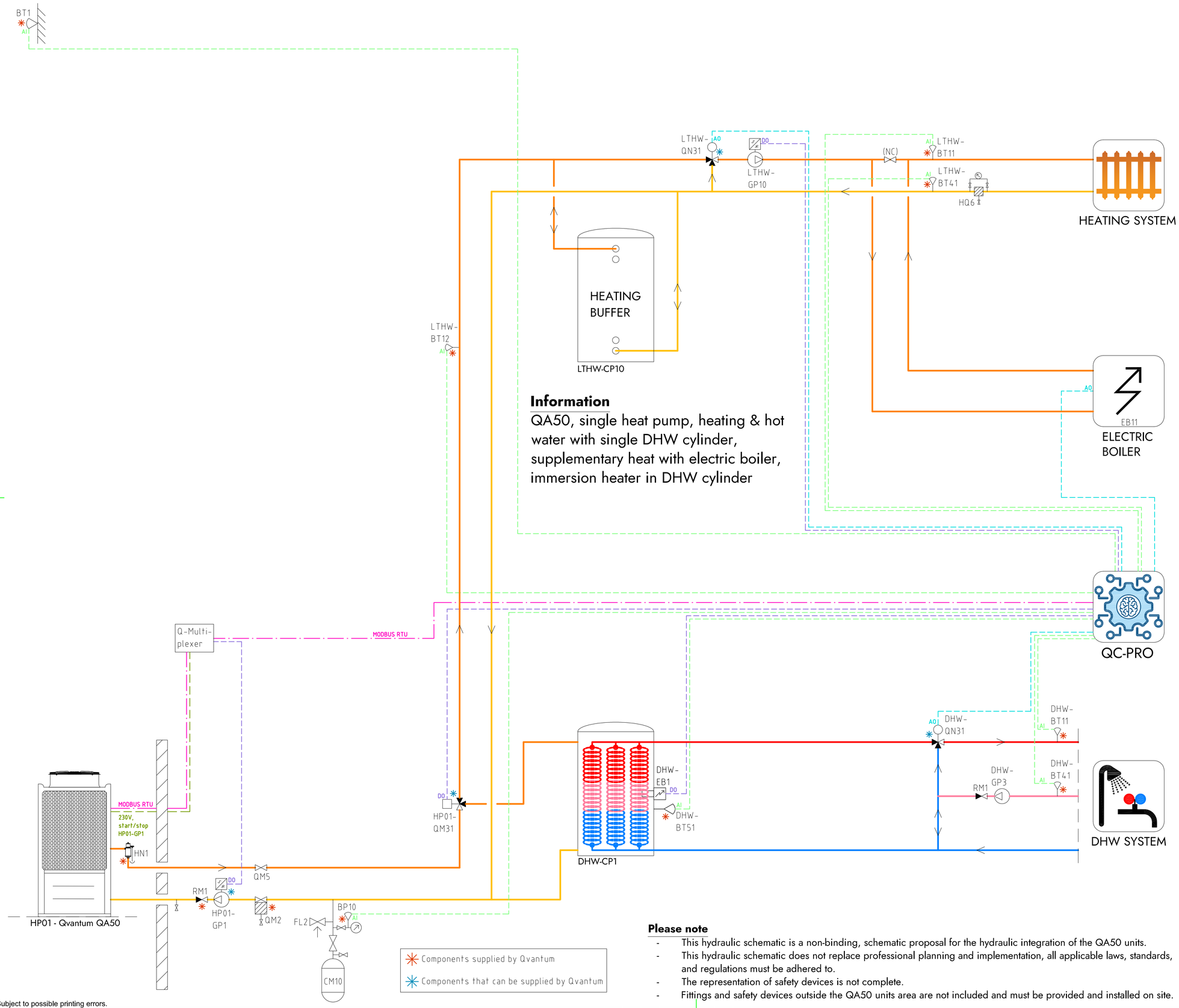
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | Electric boiler |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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- The representation of safety devices is not complete.
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HEAT PUMPS FOR SUSTAINABLE CITIES

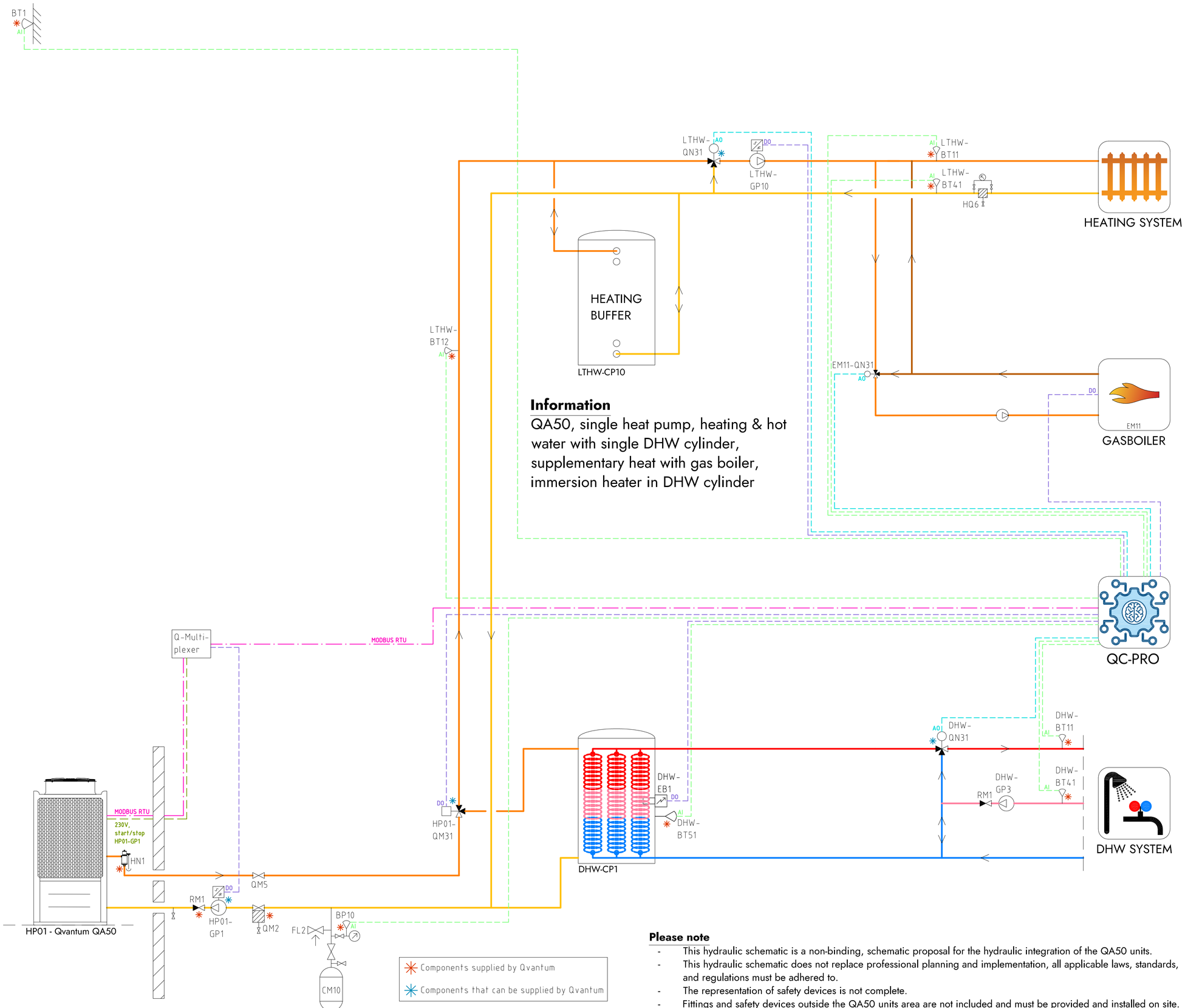
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Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

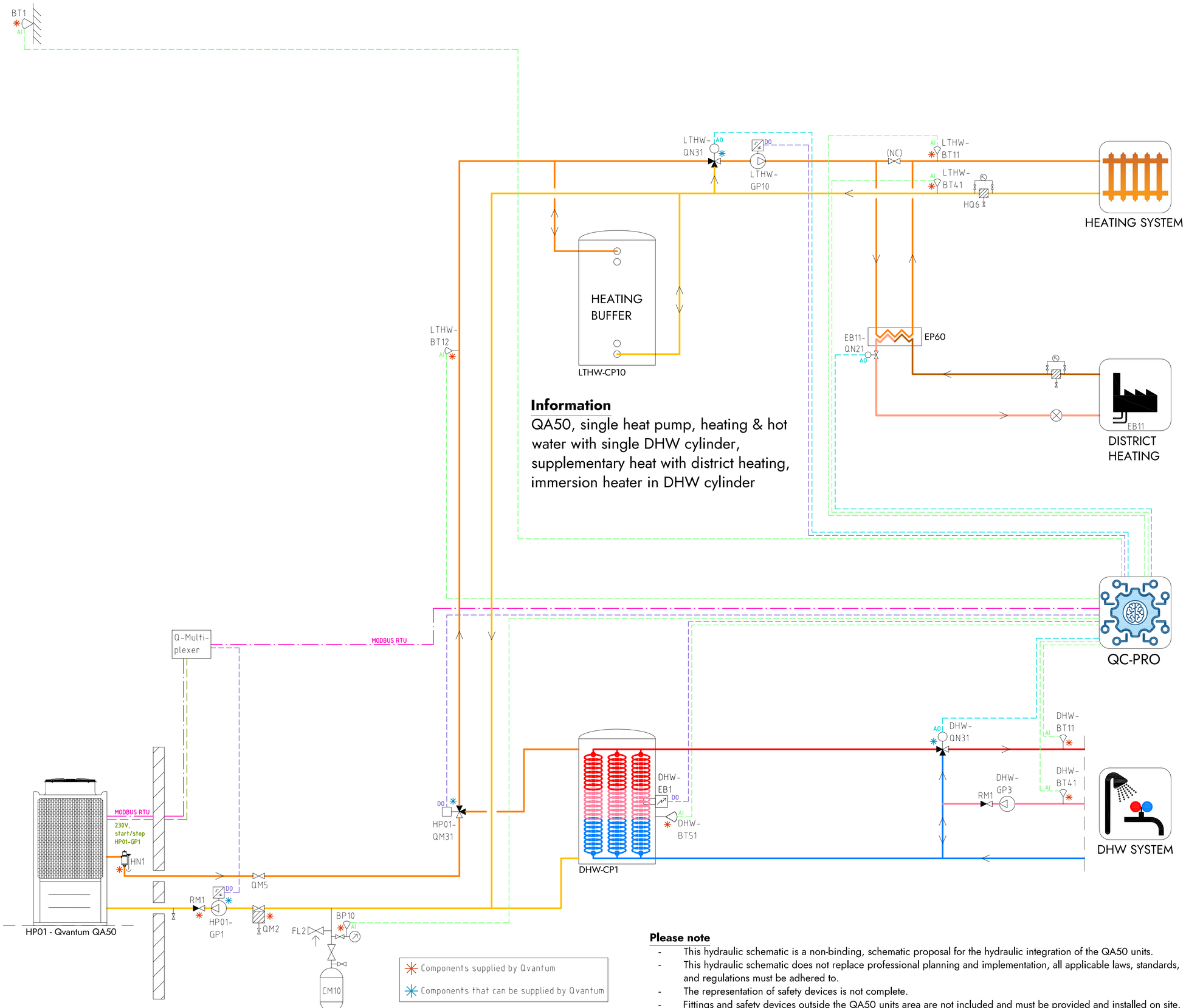
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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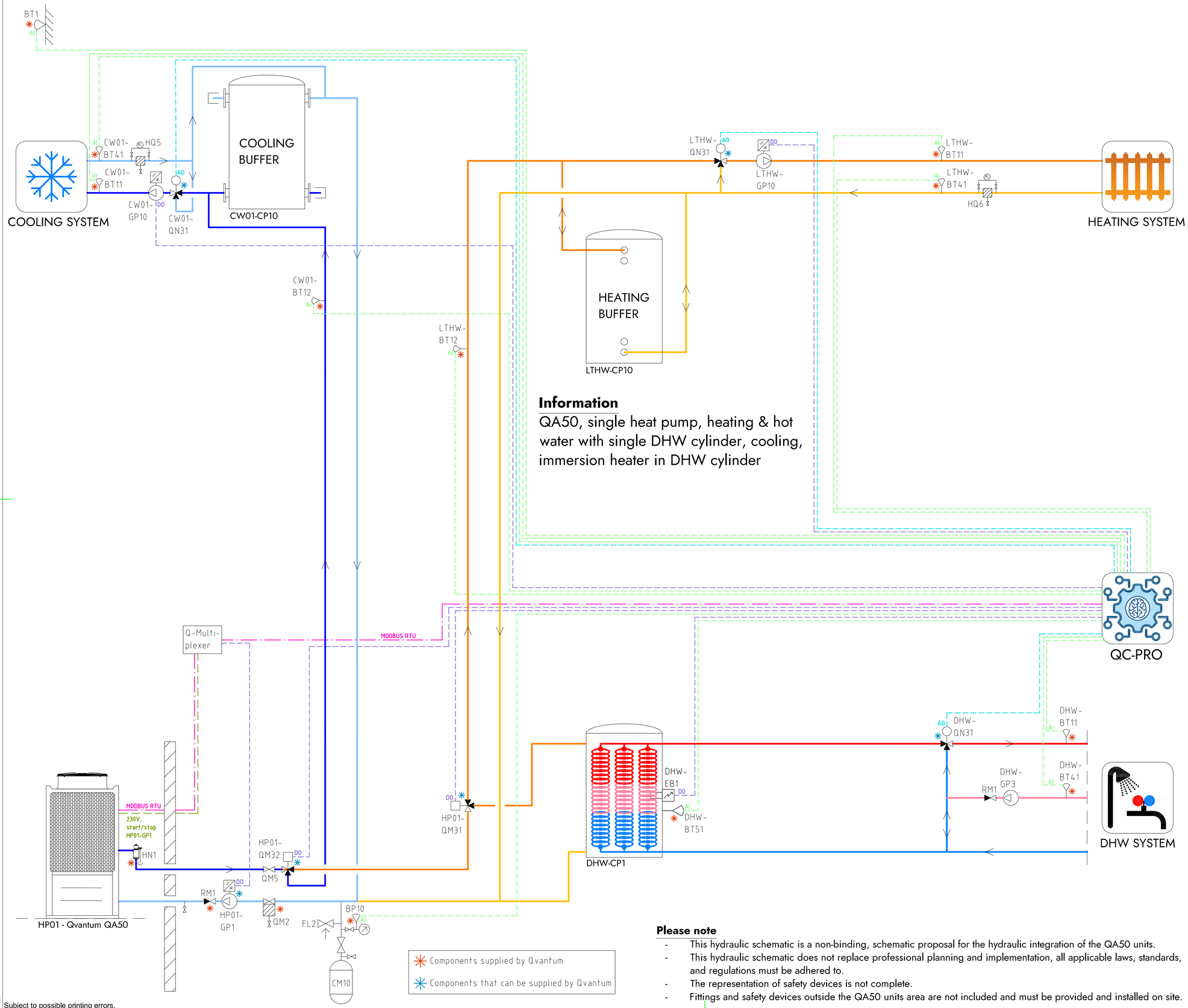
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

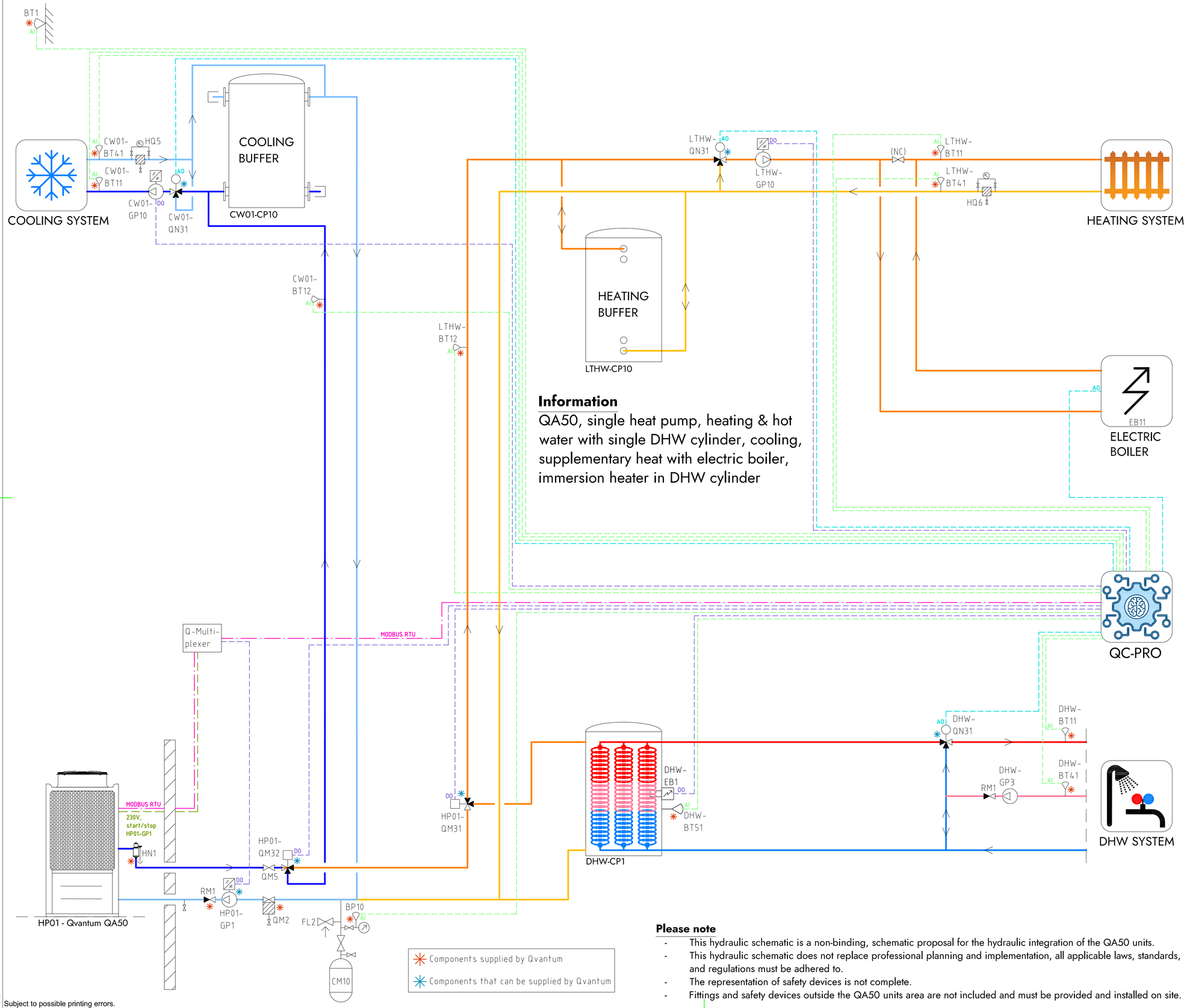
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & hot water with single DHW cylinder, cooling, supplementary heat with electric boiler, immersion heater in DHW cylinder

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | Electric boiler |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

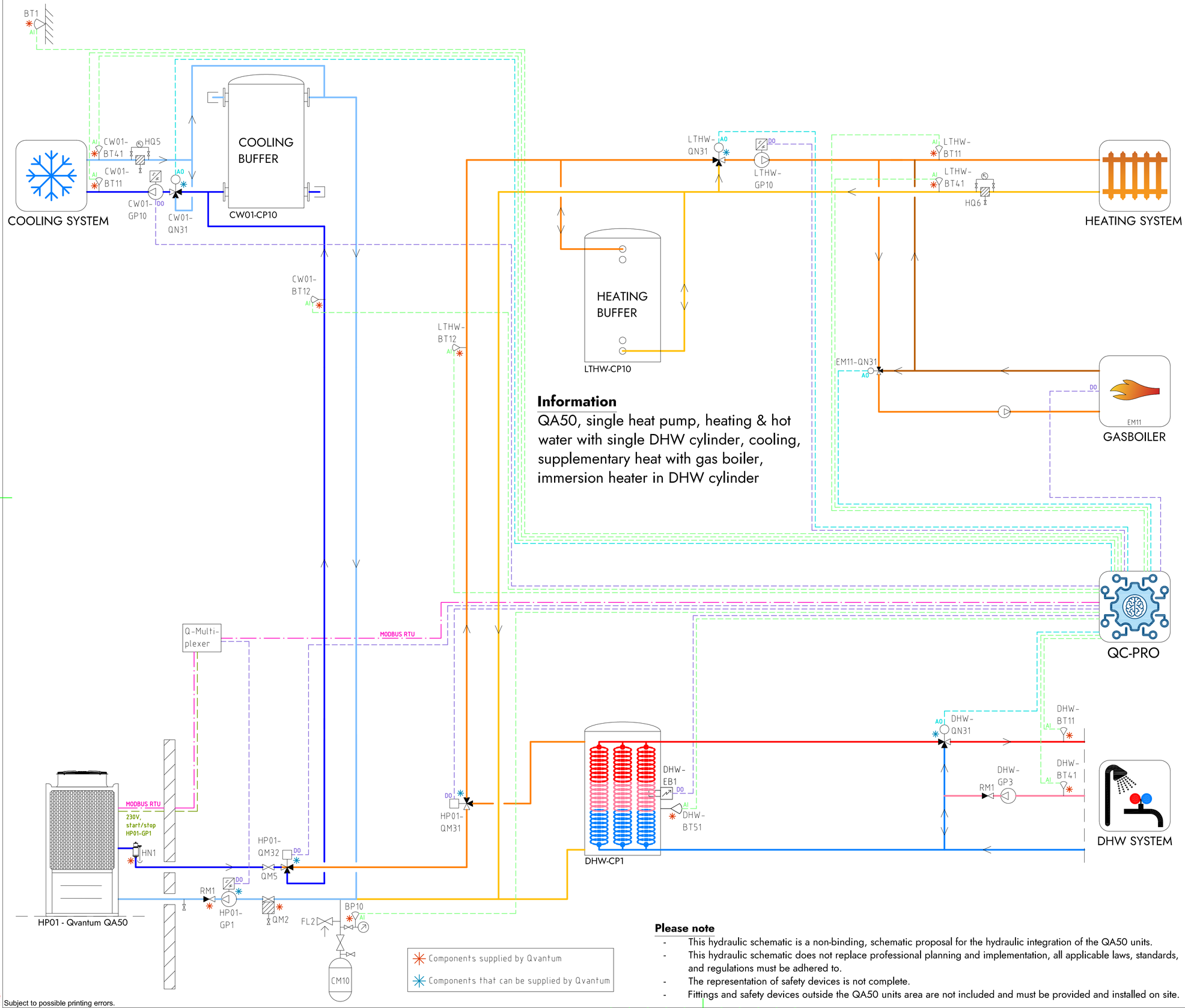
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & hot water with single DHW cylinder, cooling, supplementary heat with gas boiler, immersion heater in DHW cylinder

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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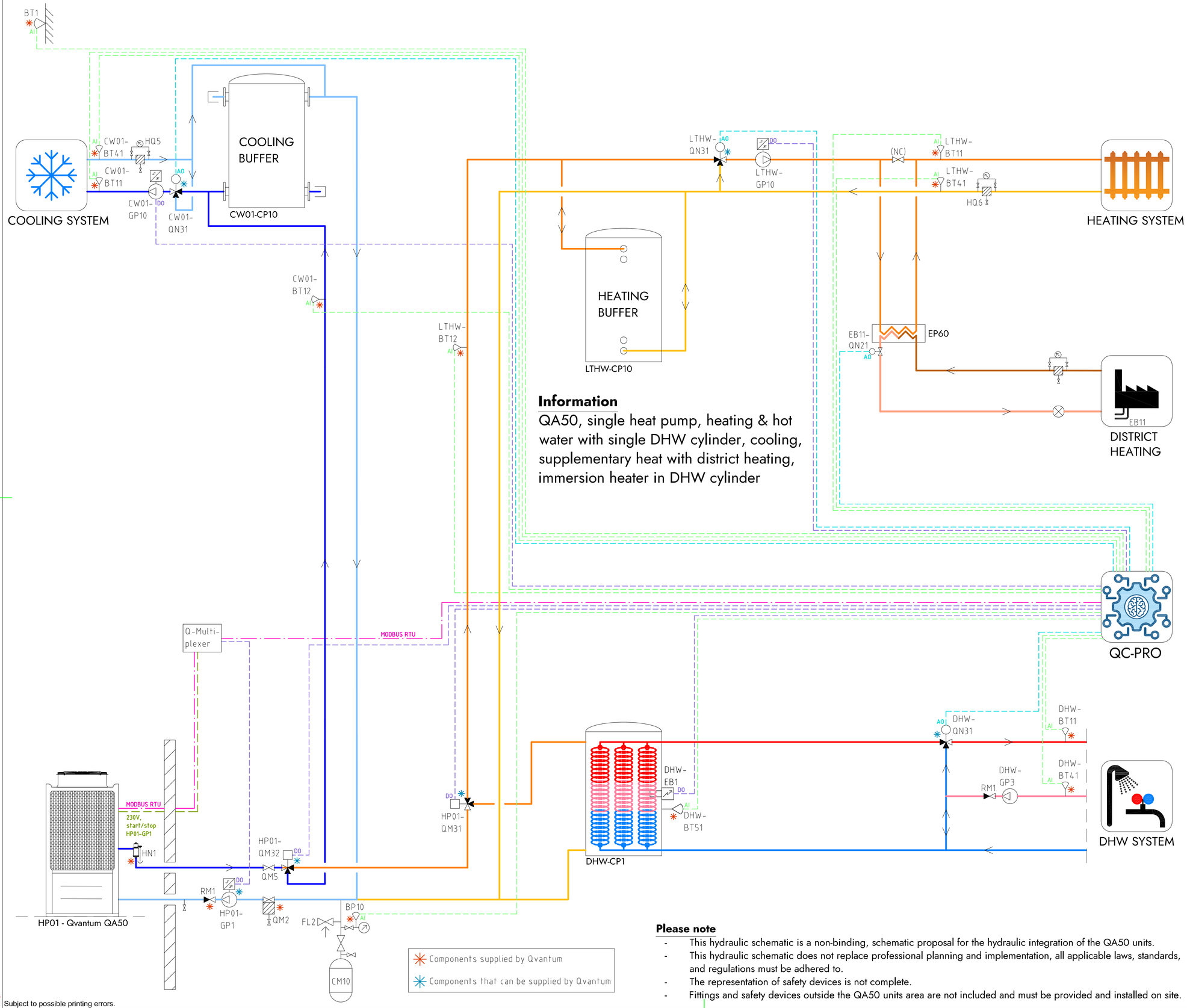
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & hot water with single DHW cylinder, cooling, supplementary heat with district heating, immersion heater in DHW cylinder

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-CP1 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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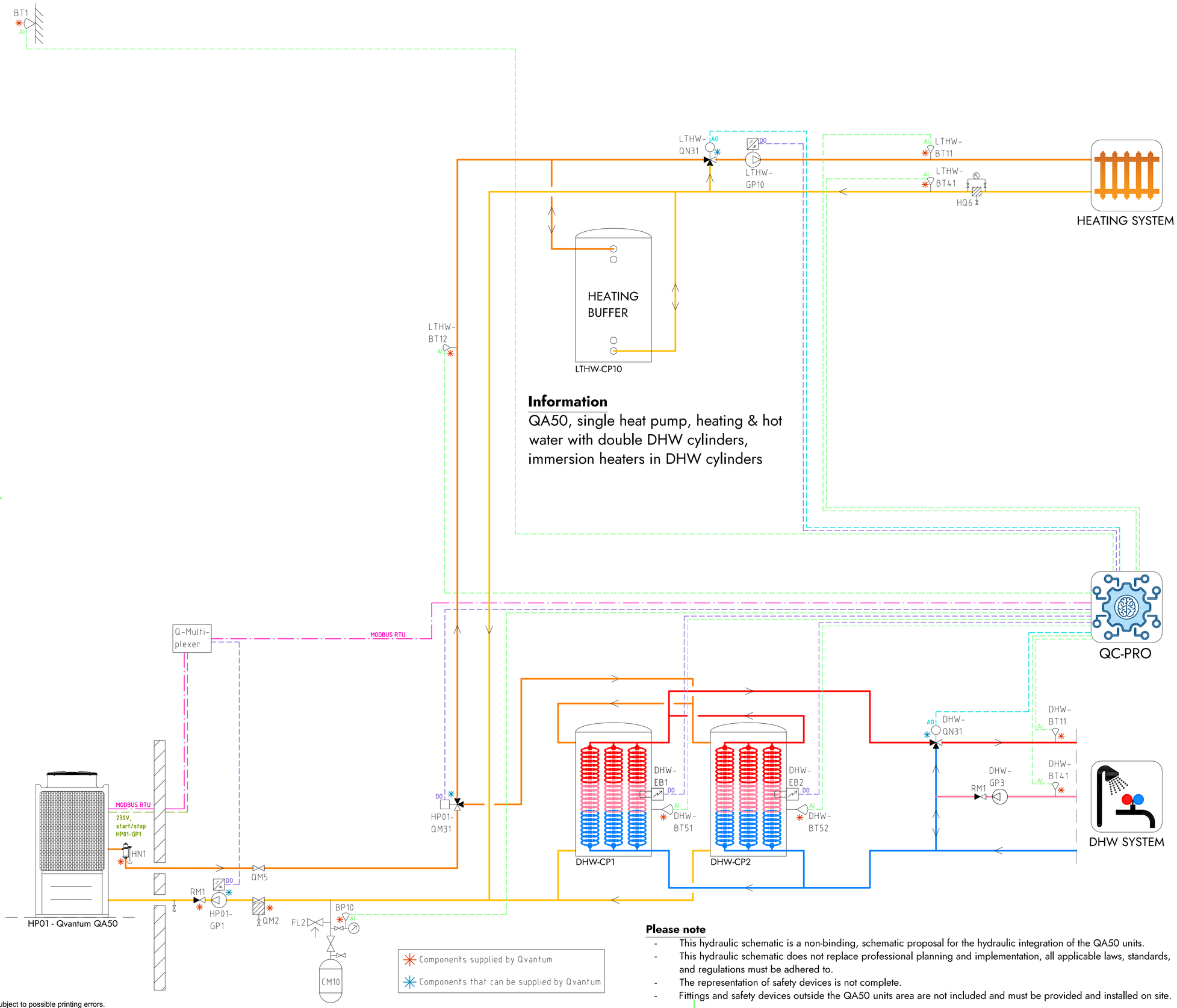
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

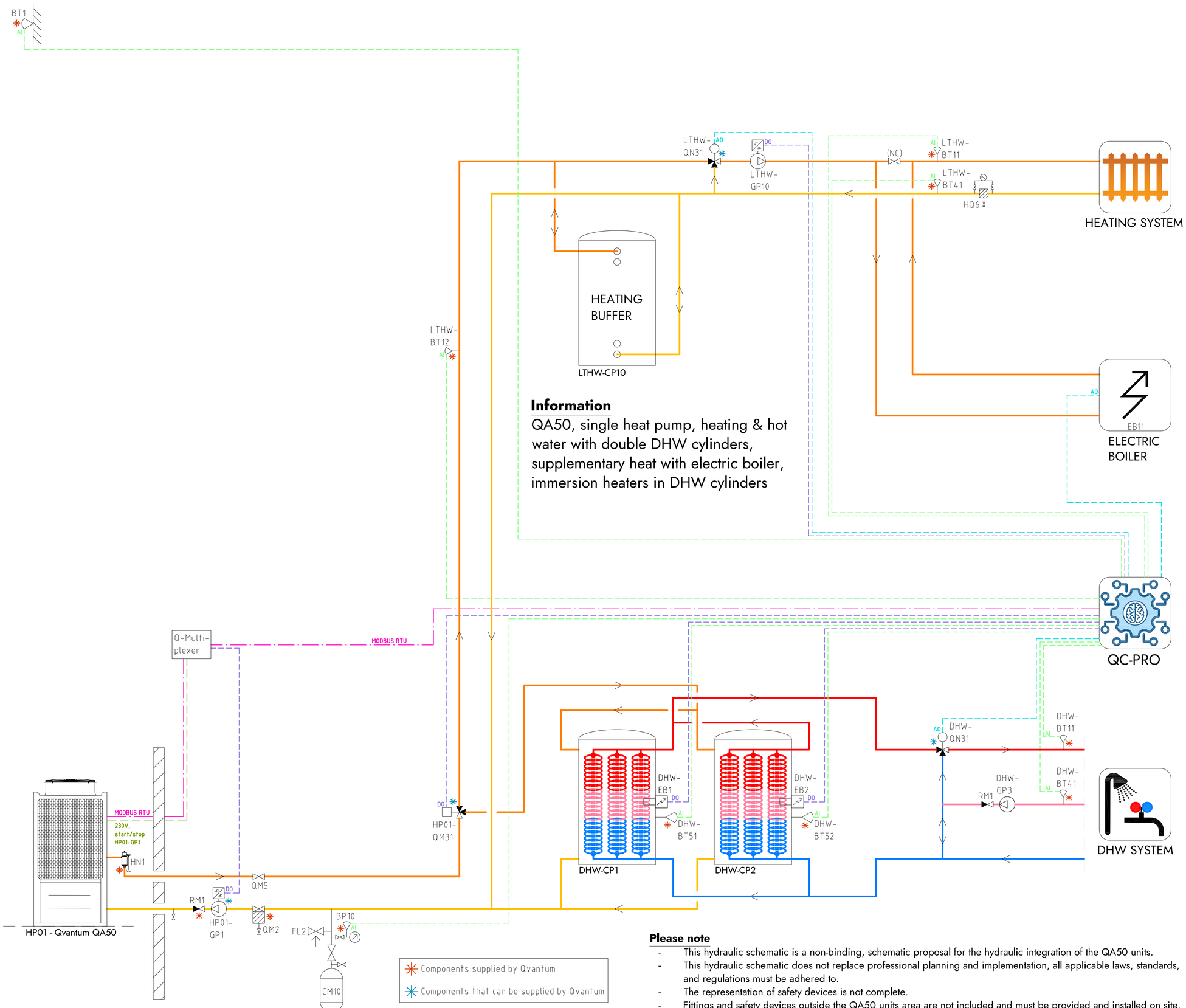
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | Electric boiler |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

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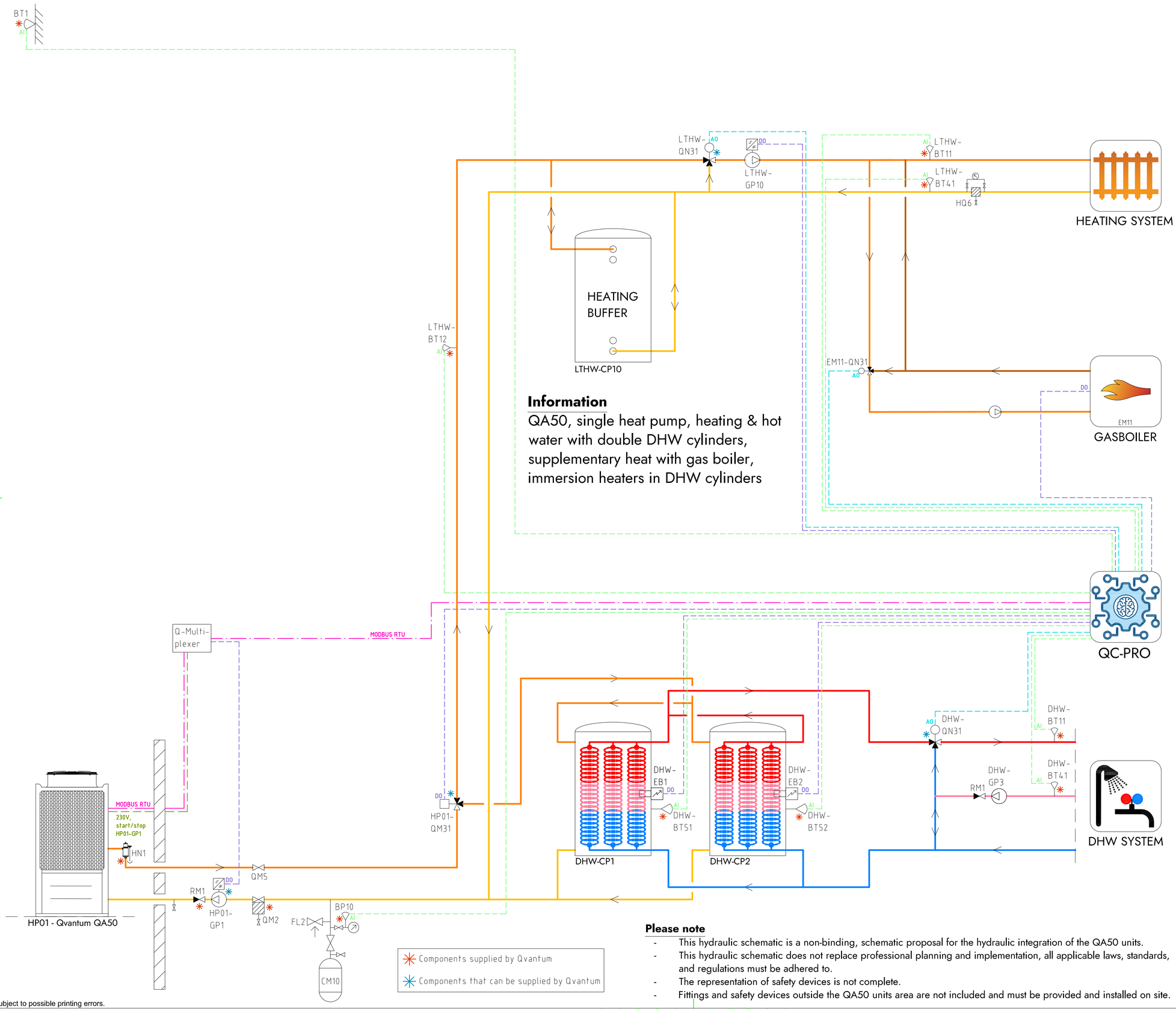
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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XREF:
LAGER: SB11

Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

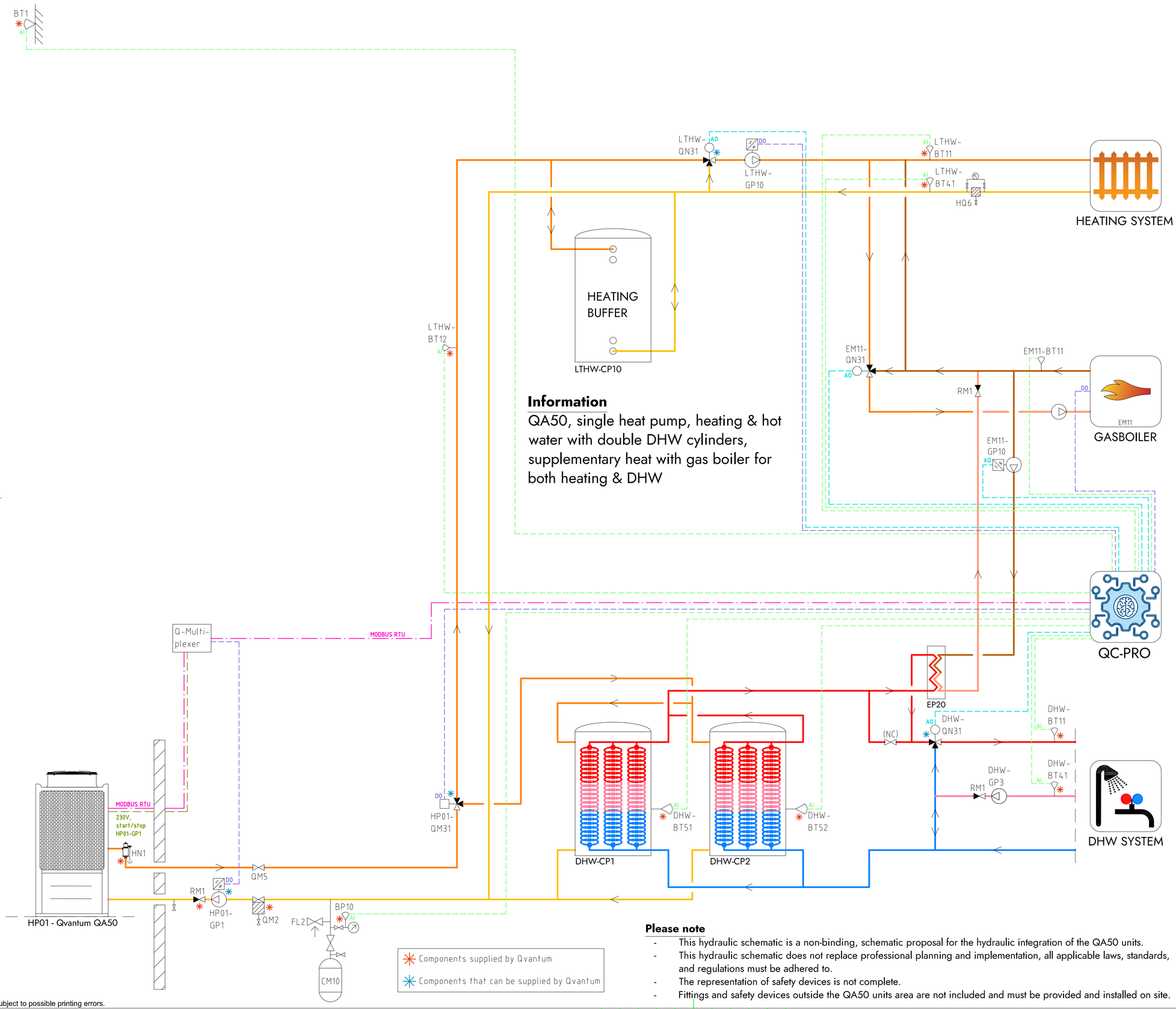
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| EM11-GP10 | Circulation pump, gas boiler system |
| EM11-BT11 | Flow temperature, gas boiler system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

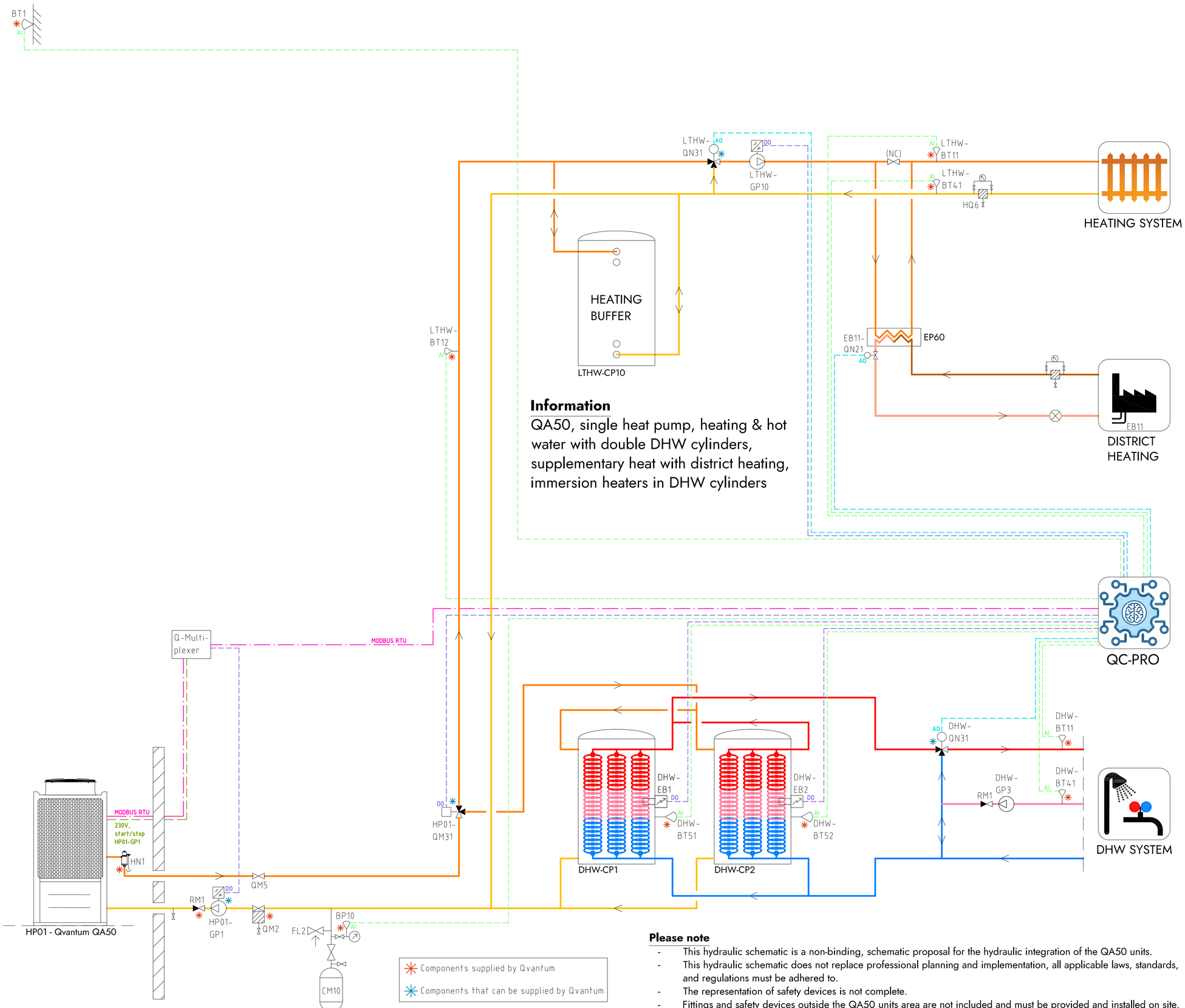
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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Subject to possible printing errors.

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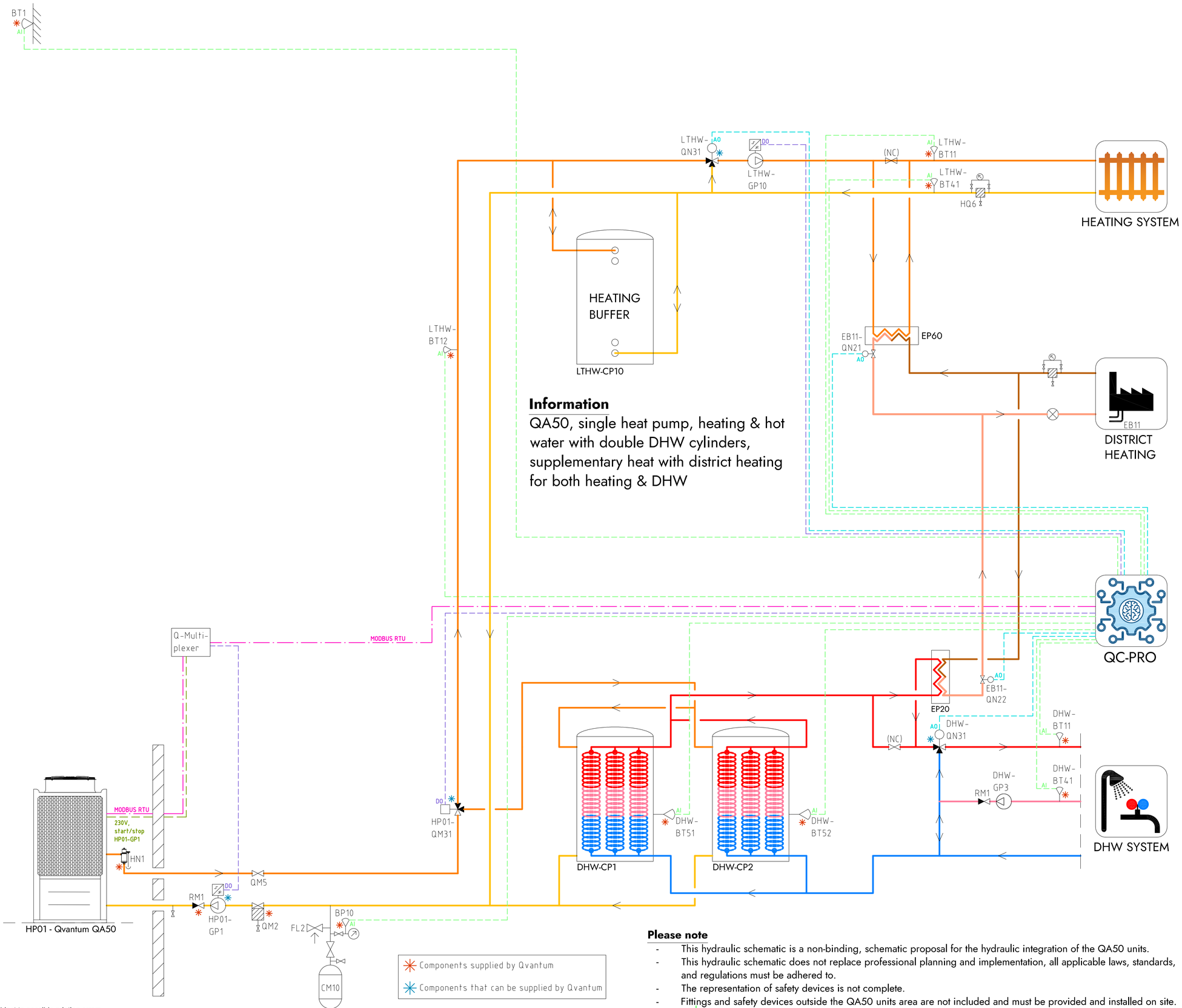
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating & hot water with double DHW cylinders, supplementary heat with district heating for both heating & DHW

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

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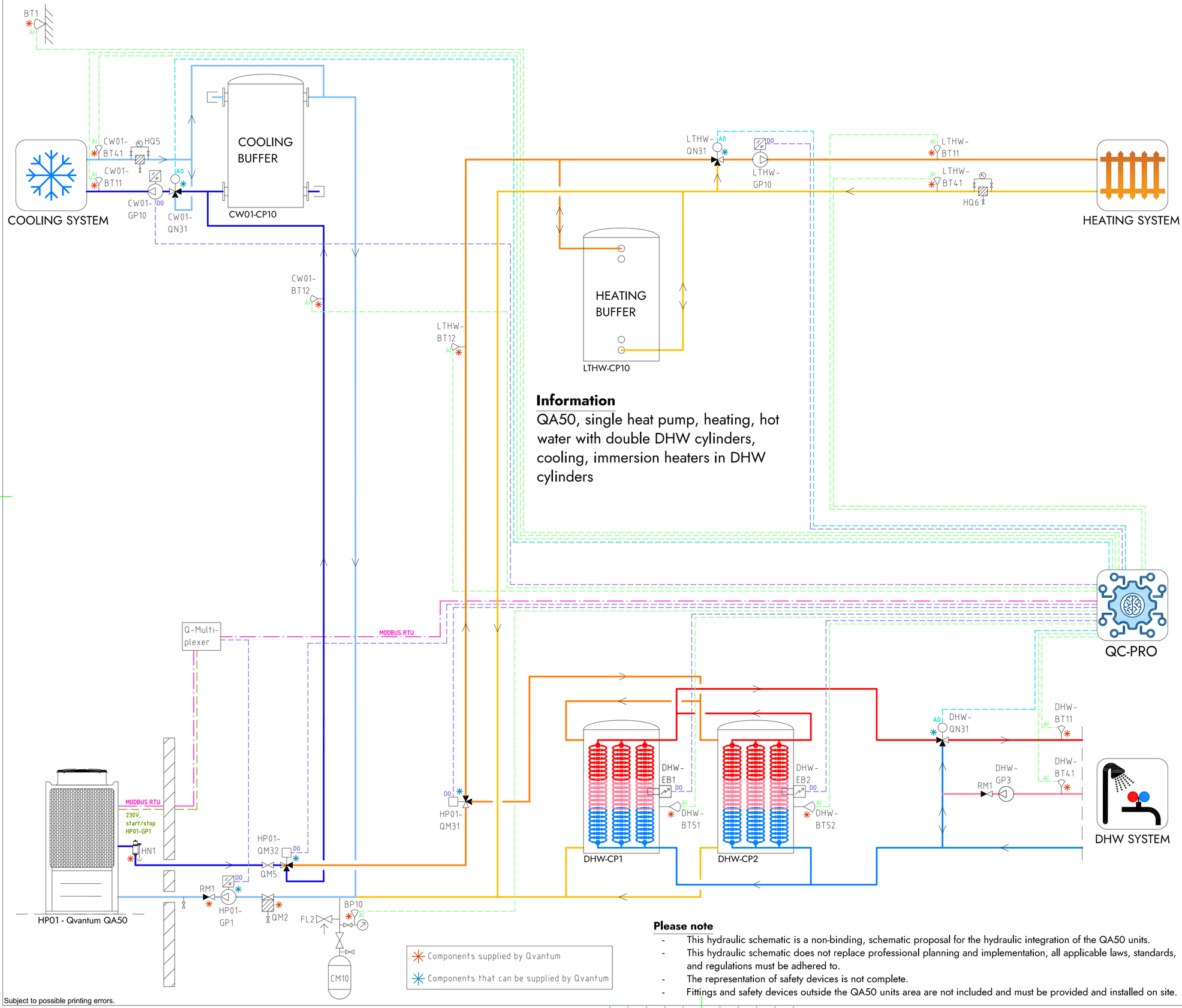
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating, hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

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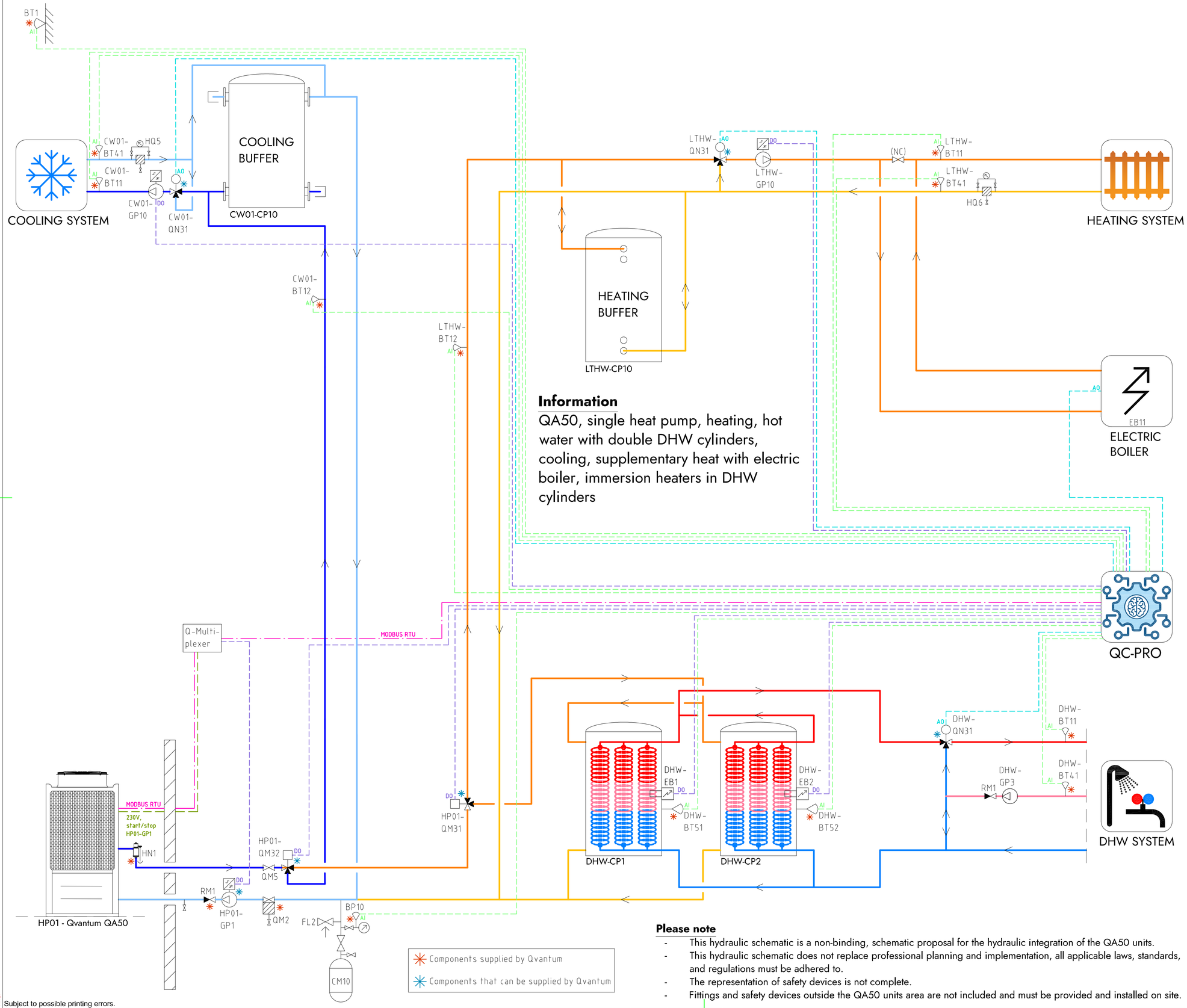
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating, hot water with double DHW cylinders, cooling, supplementary heat with electric boiler, immersion heaters in DHW cylinders

## Please note

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## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | Electric boiler |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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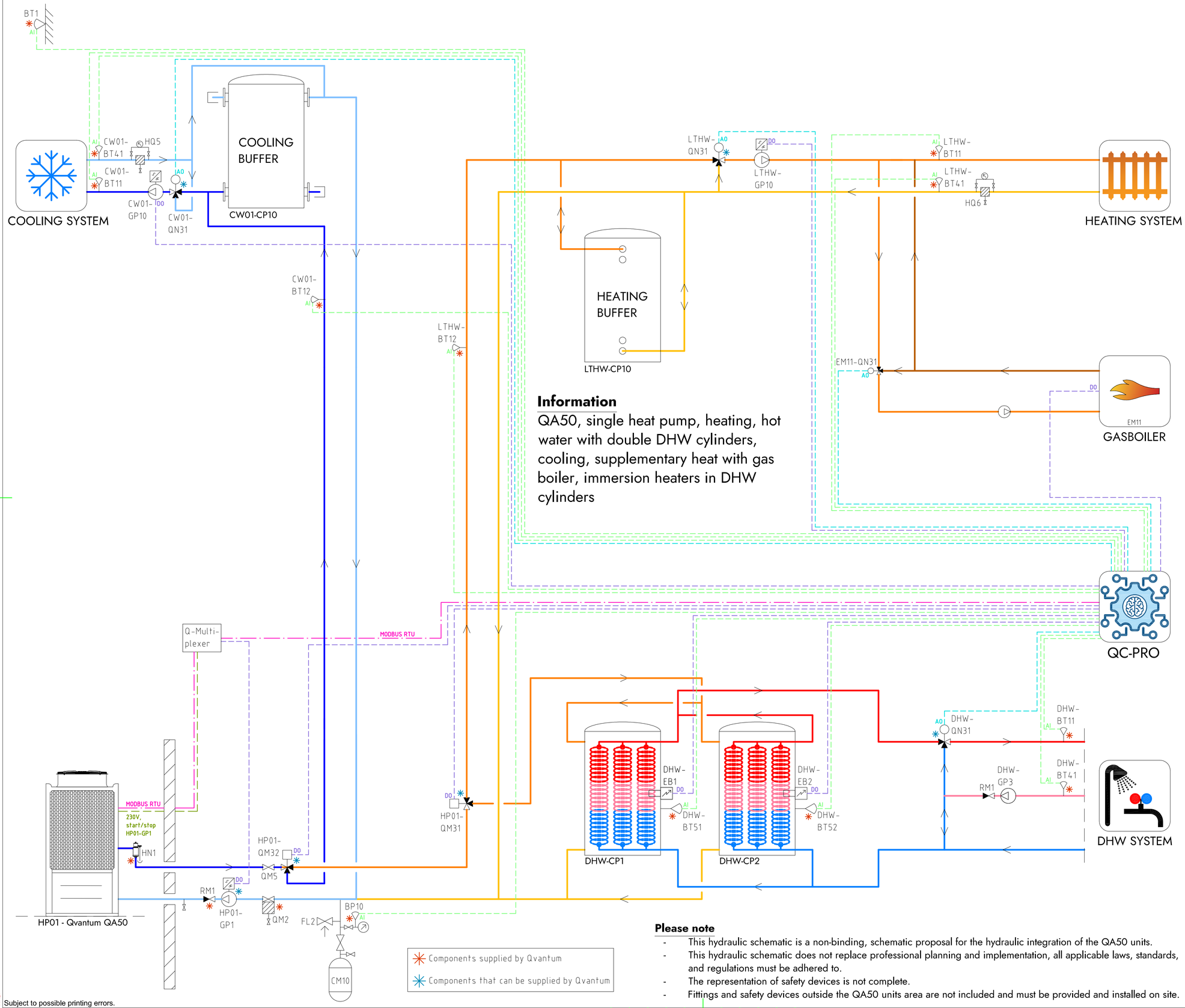
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating, hot water with double DHW cylinders, cooling, supplementary heat with gas boiler, immersion heaters in DHW cylinders

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES

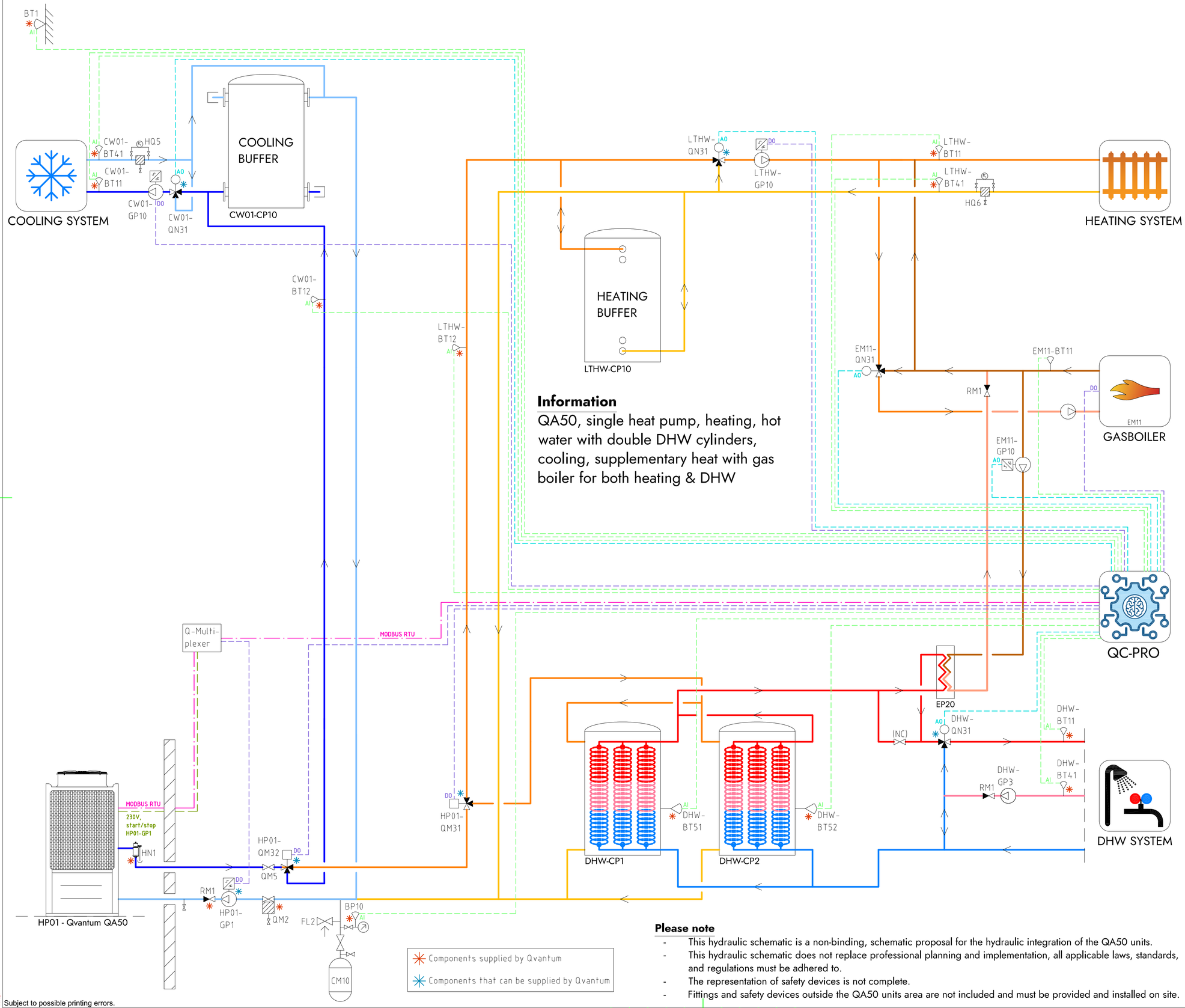
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating, hot water with double DHW cylinders, cooling, supplementary heat with gas boiler for both heating & DHW

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

Components supplied by Qvantum

Components that can be supplied by Qvantum

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| EM11-GP10 | Circulation pump, gas boiler system |
| EM11-BT11 | Flow temperature, gas boiler system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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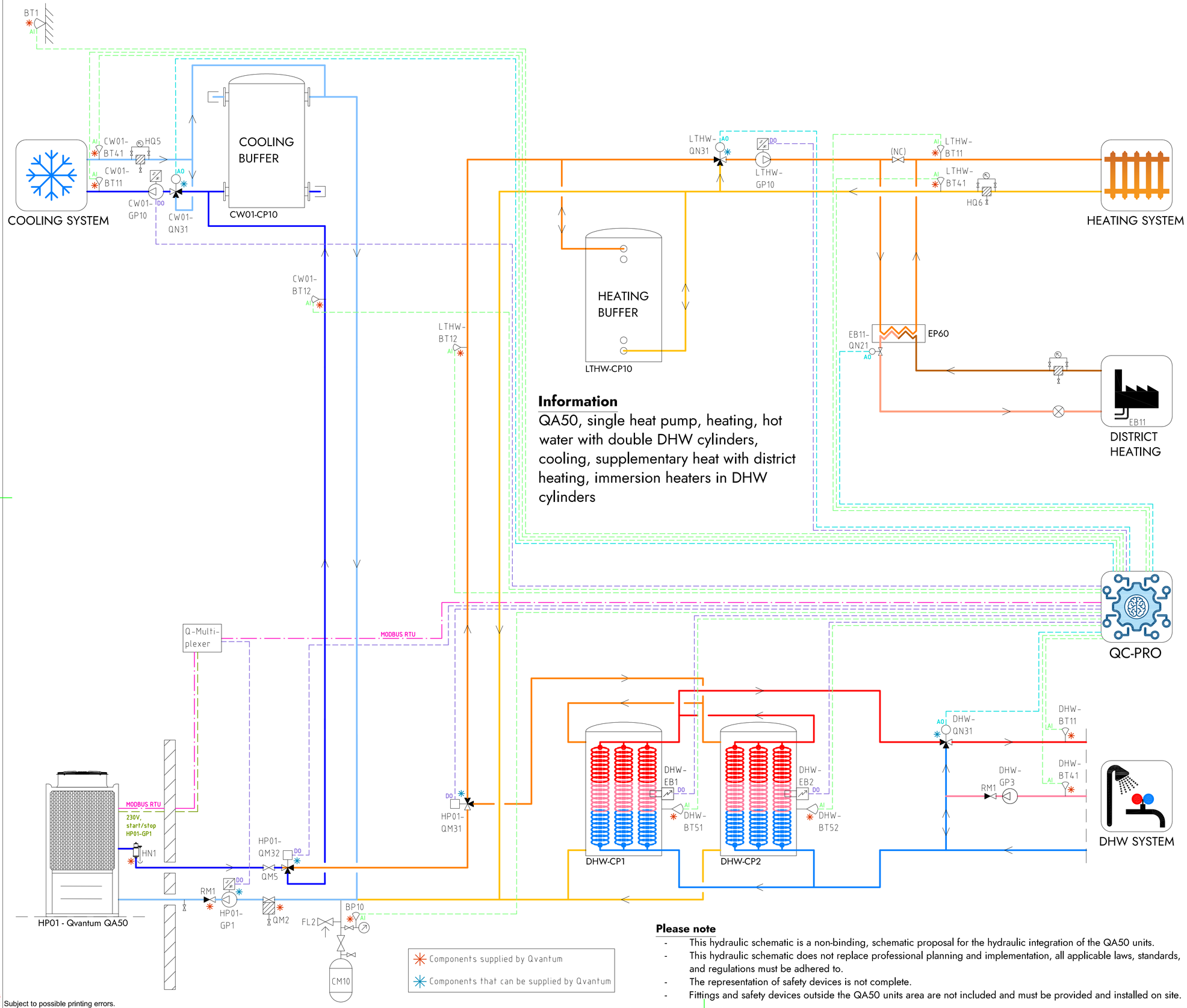
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating, hot water with double DHW cylinders, cooling, supplementary heat with district heating, immersion heaters in DHW cylinders

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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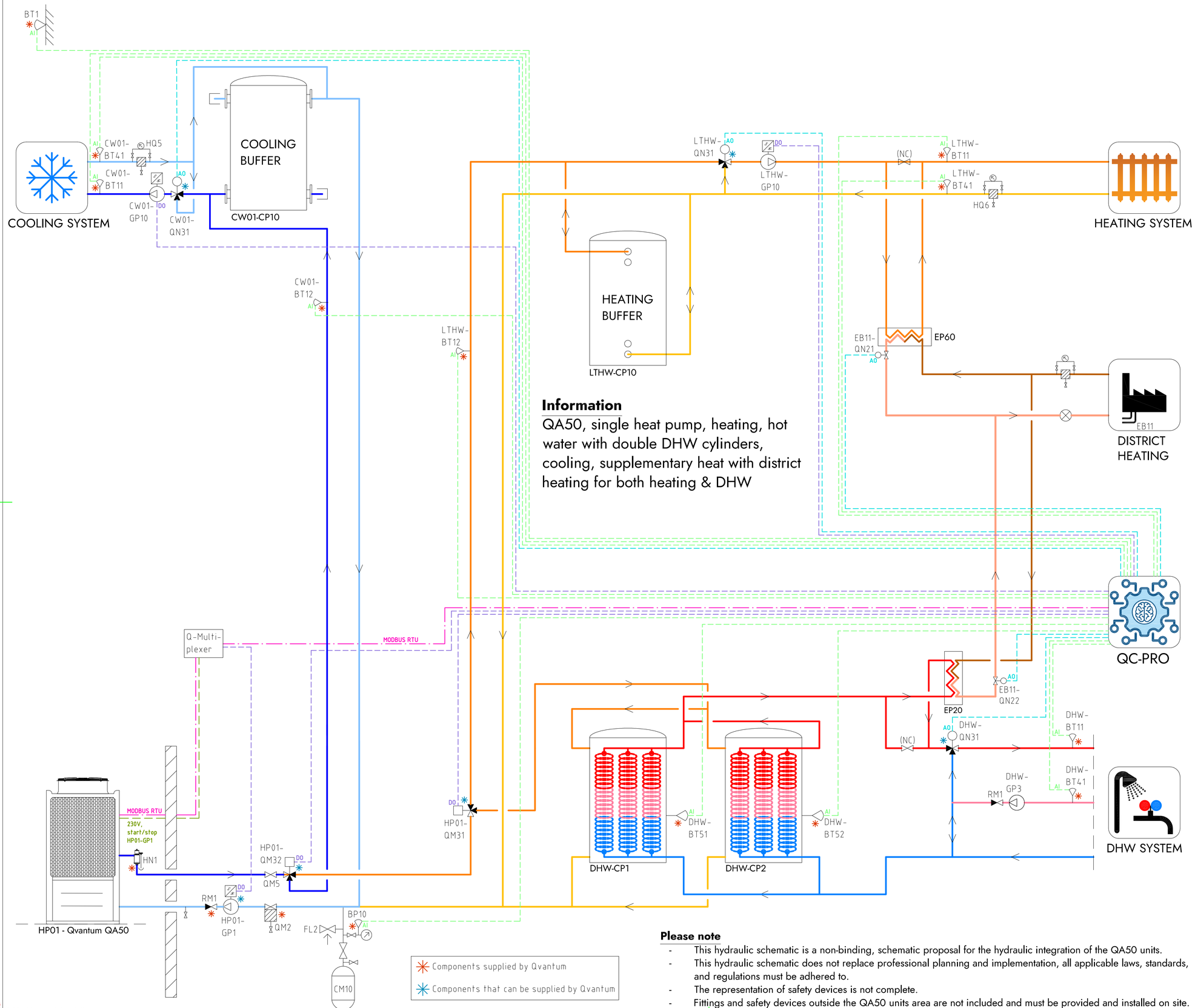
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, heating, hot water with double DHW cylinders, cooling, supplementary heat with district heating for both heating & DHW

## Please note

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## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |
| LTHW-CP10 | Heating buffer |
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |
| CW01-CP10 | Cooling buffer |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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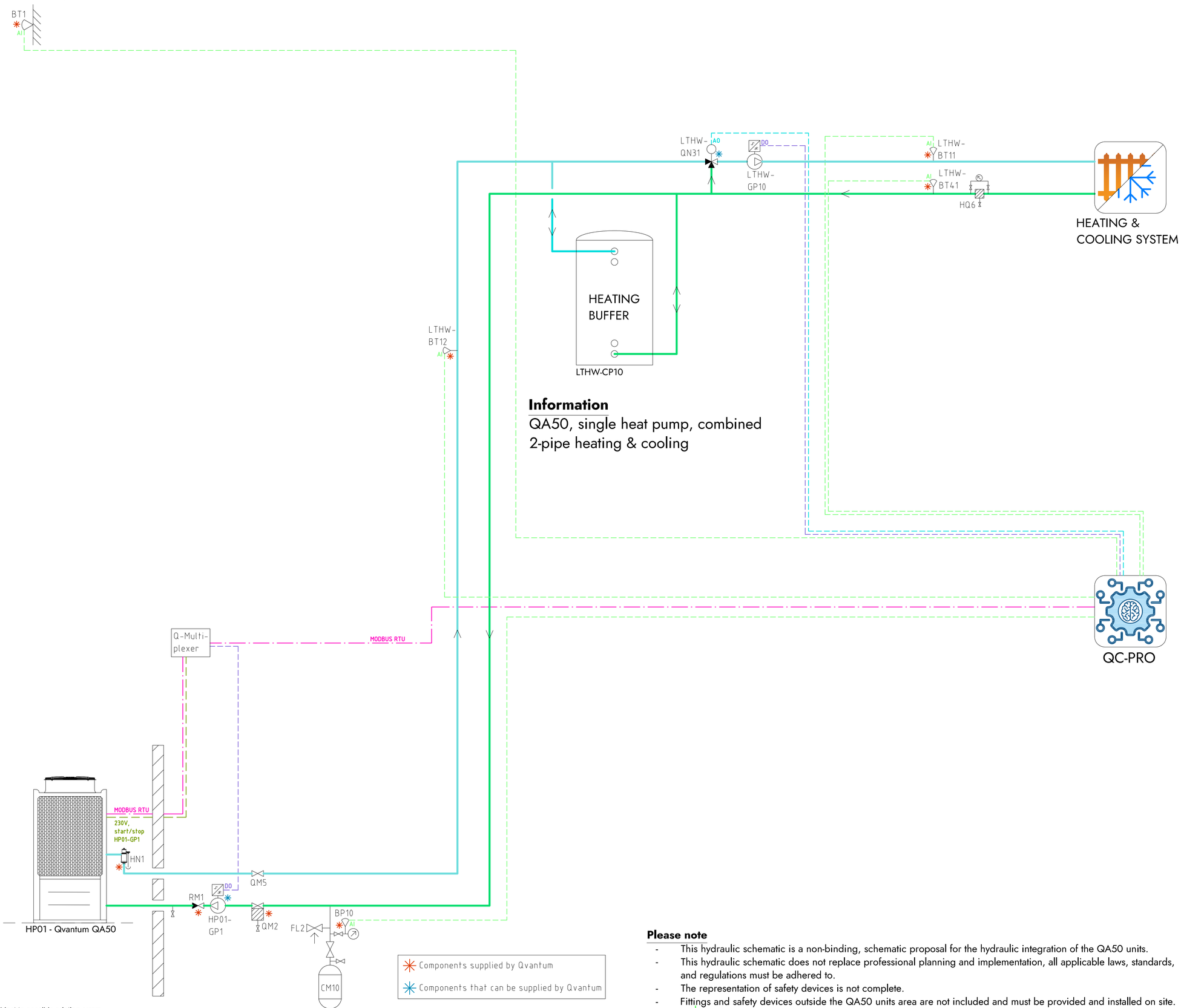
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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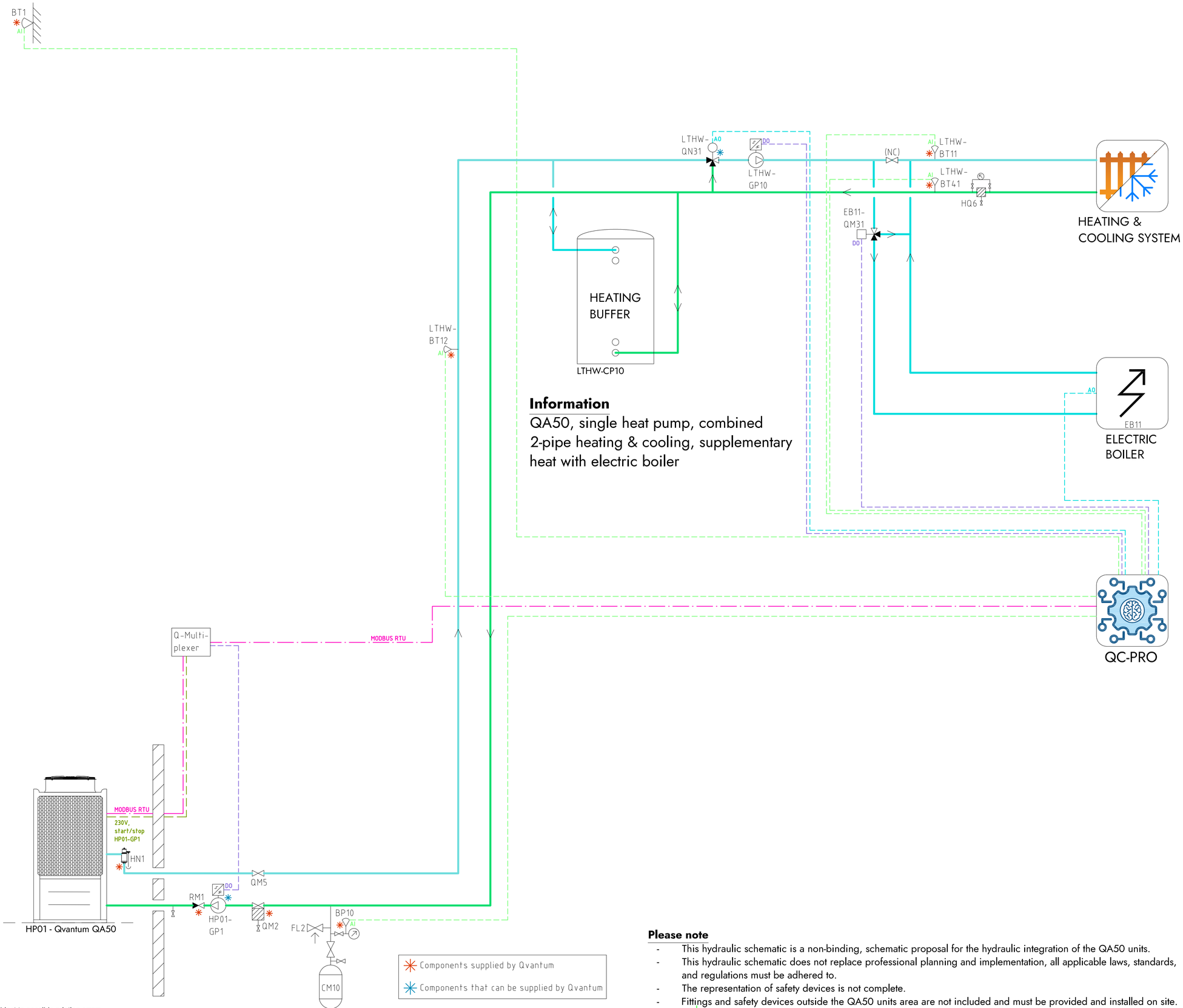
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, single heat pump, combined 2-pipe heating & cooling, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES

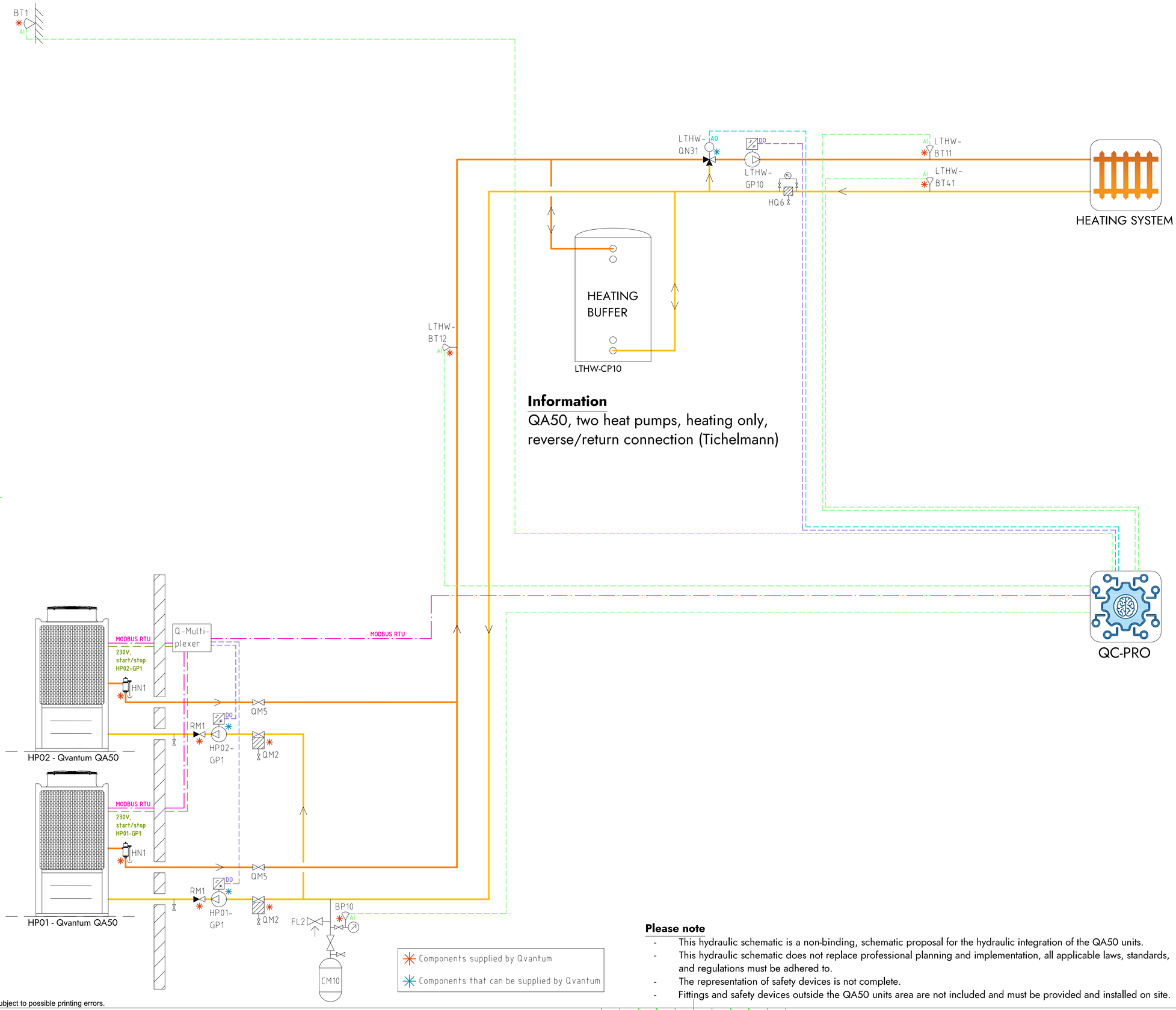
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with two heat pumps

Subject to possible printing errors.

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating only, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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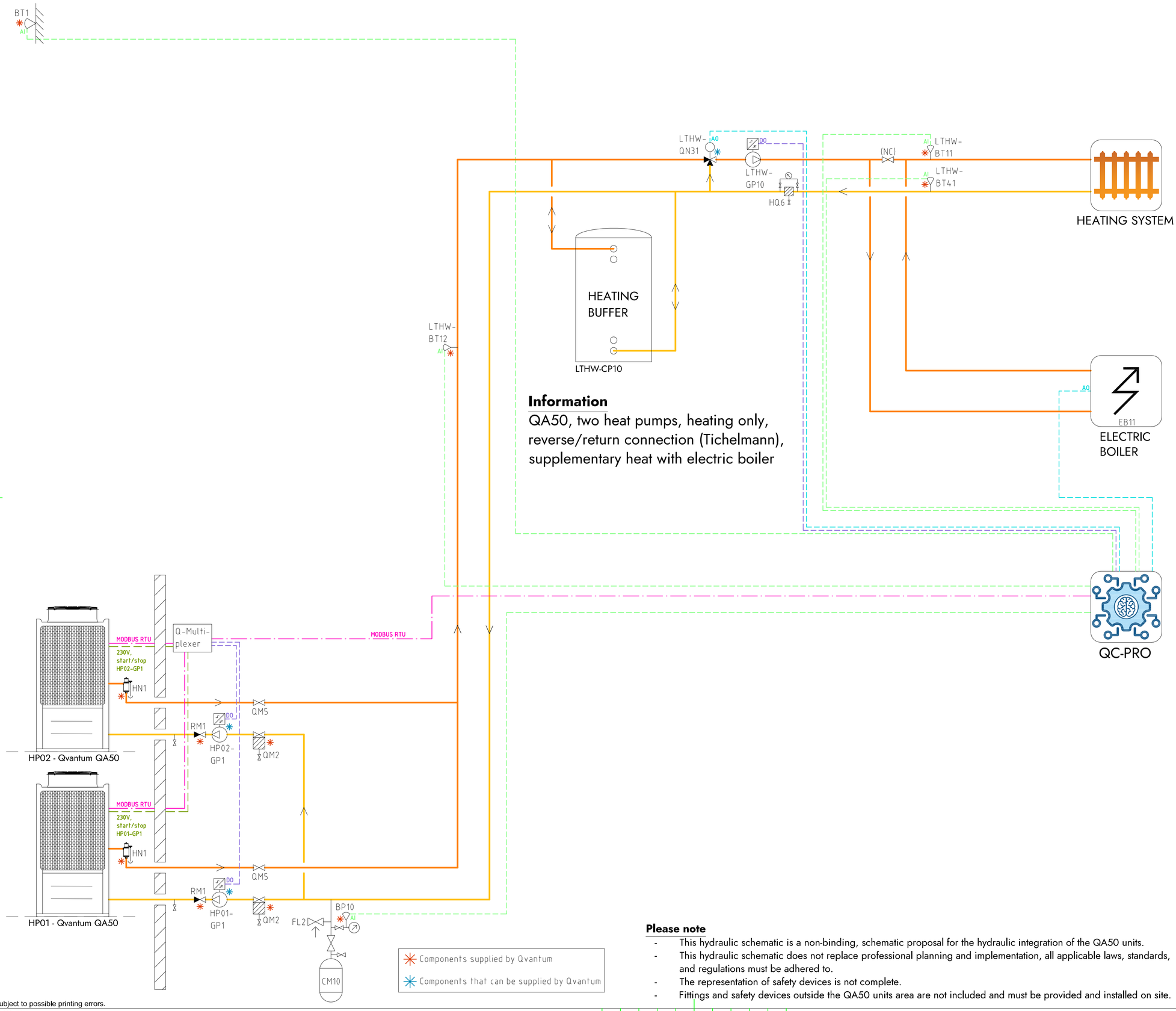
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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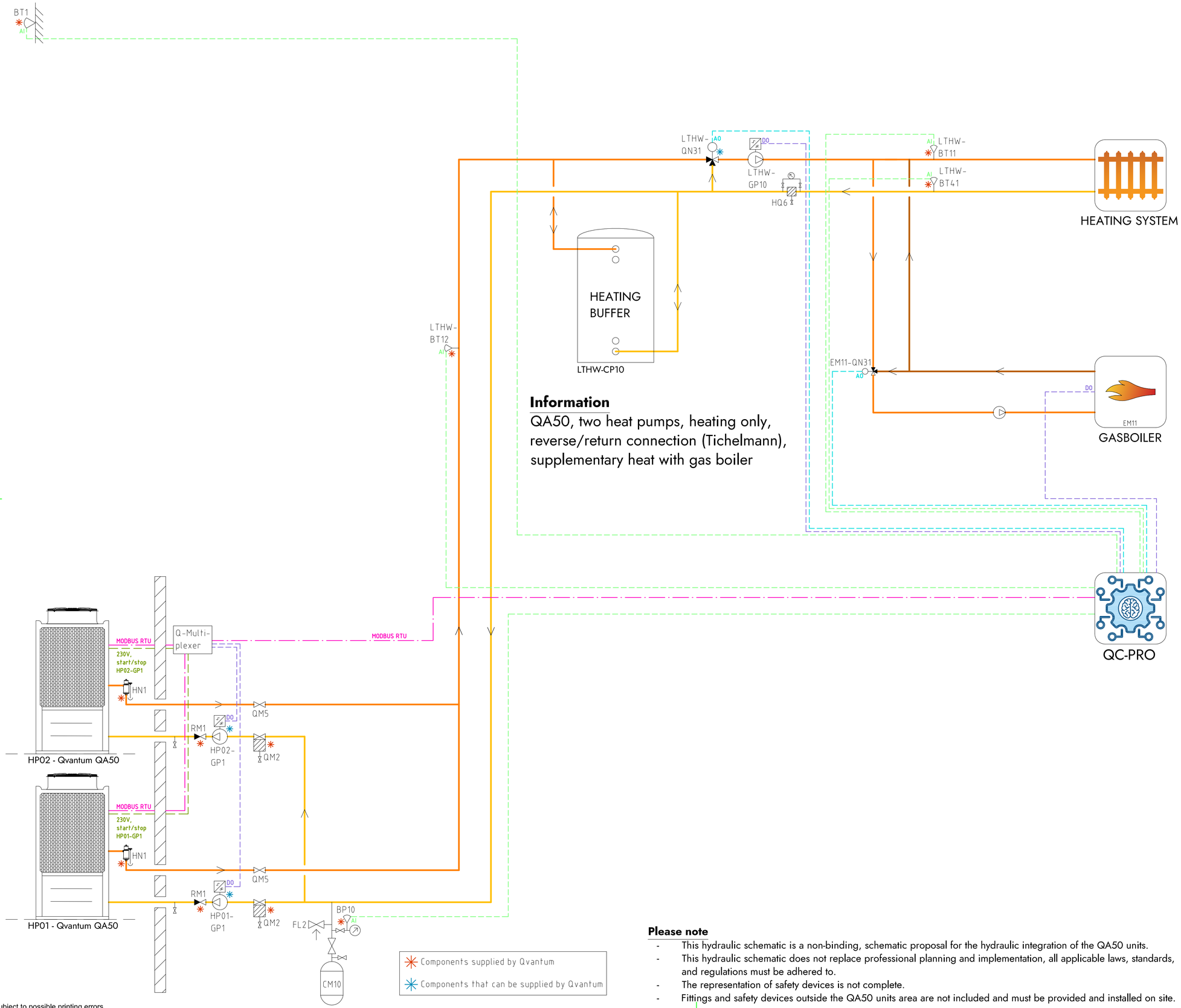
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

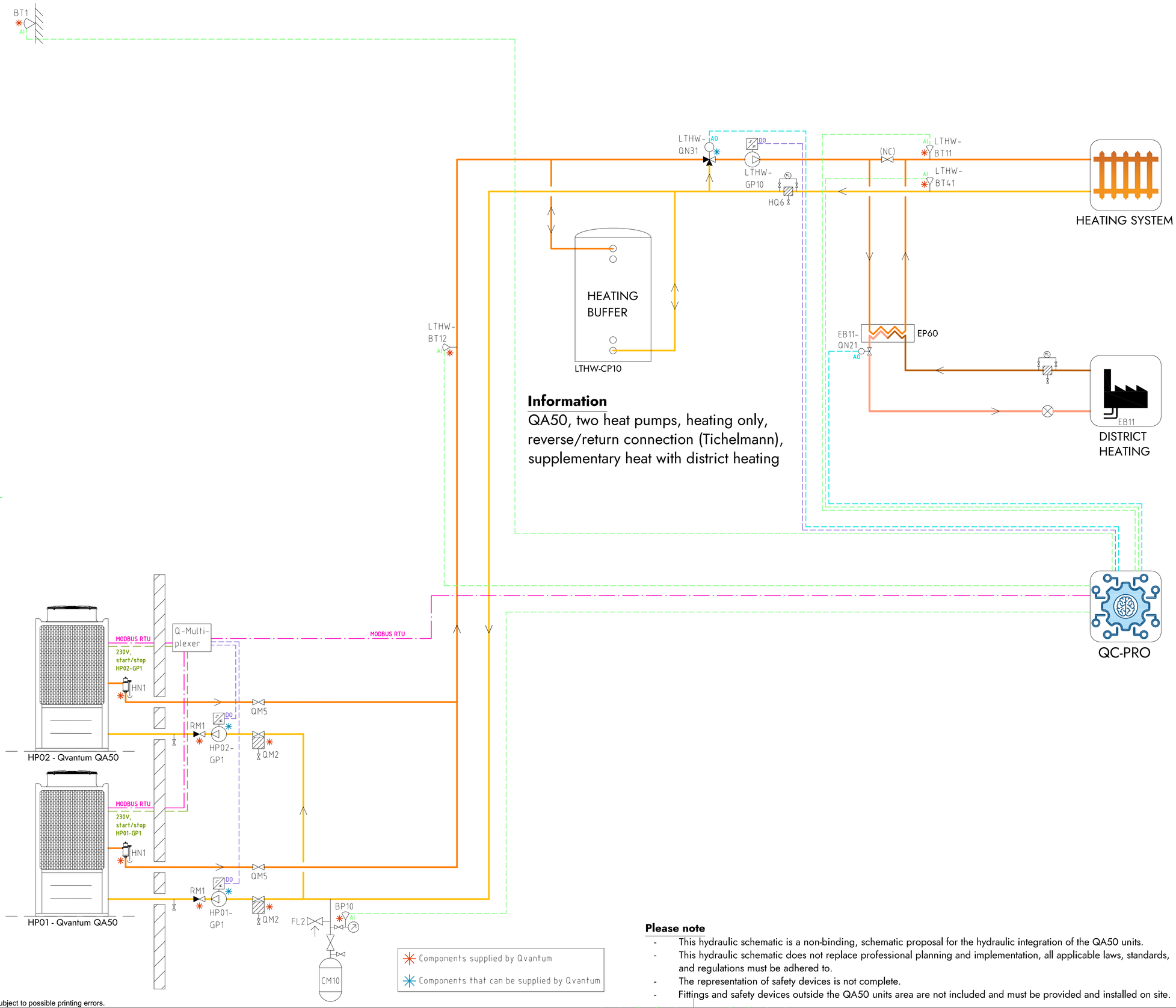
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

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HEAT PUMPS FOR SUSTAINABLE CITIES

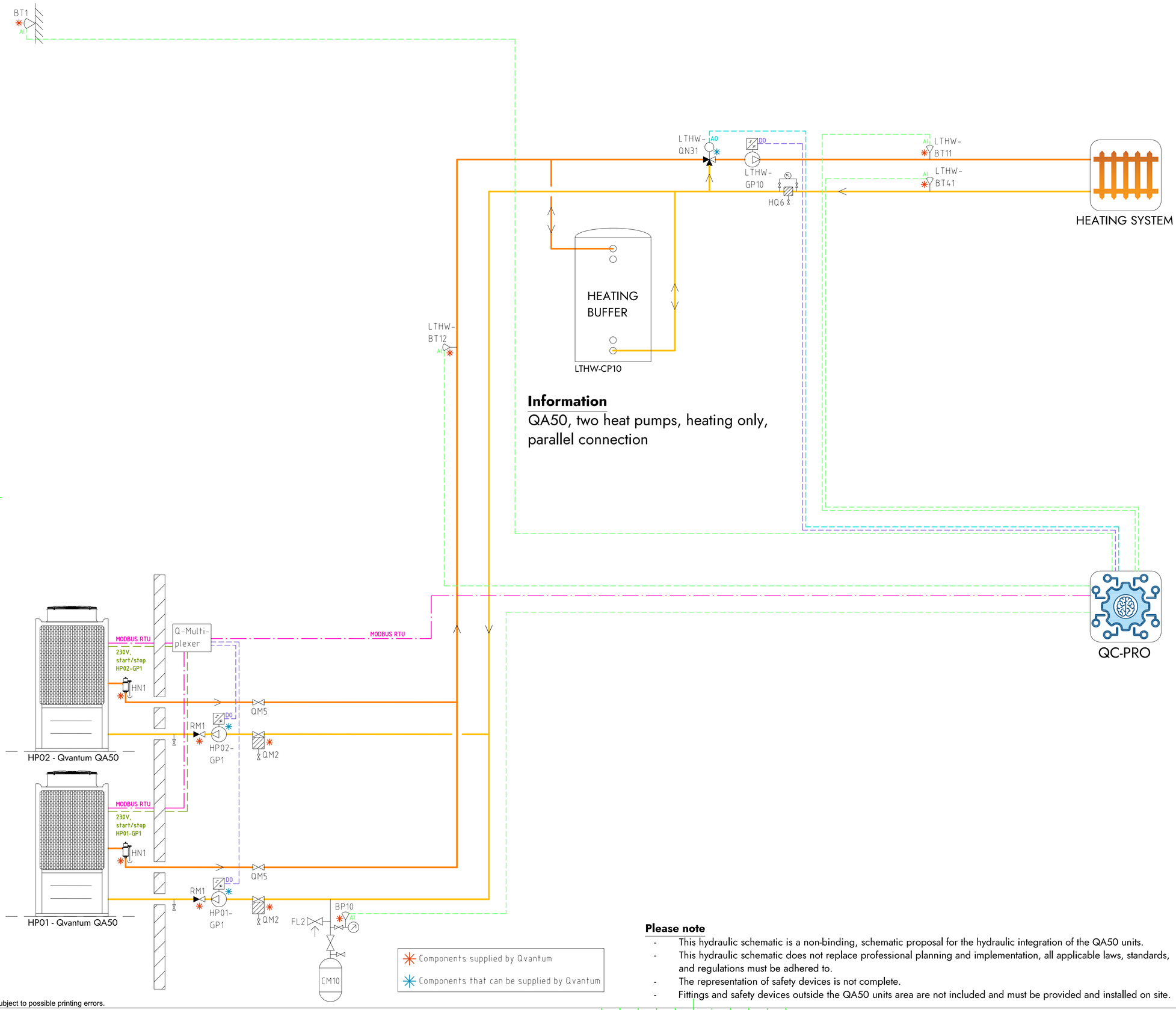
QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

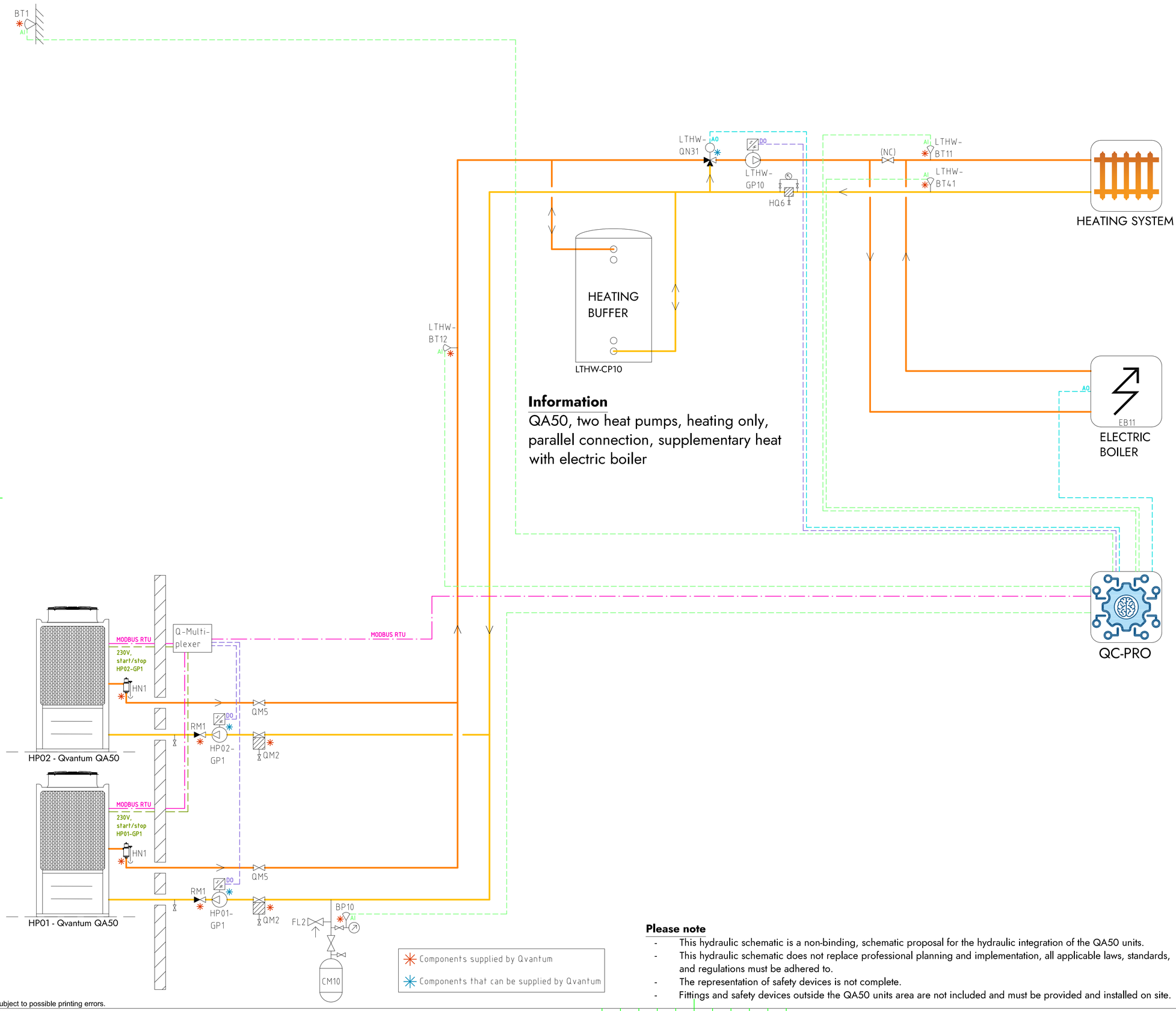
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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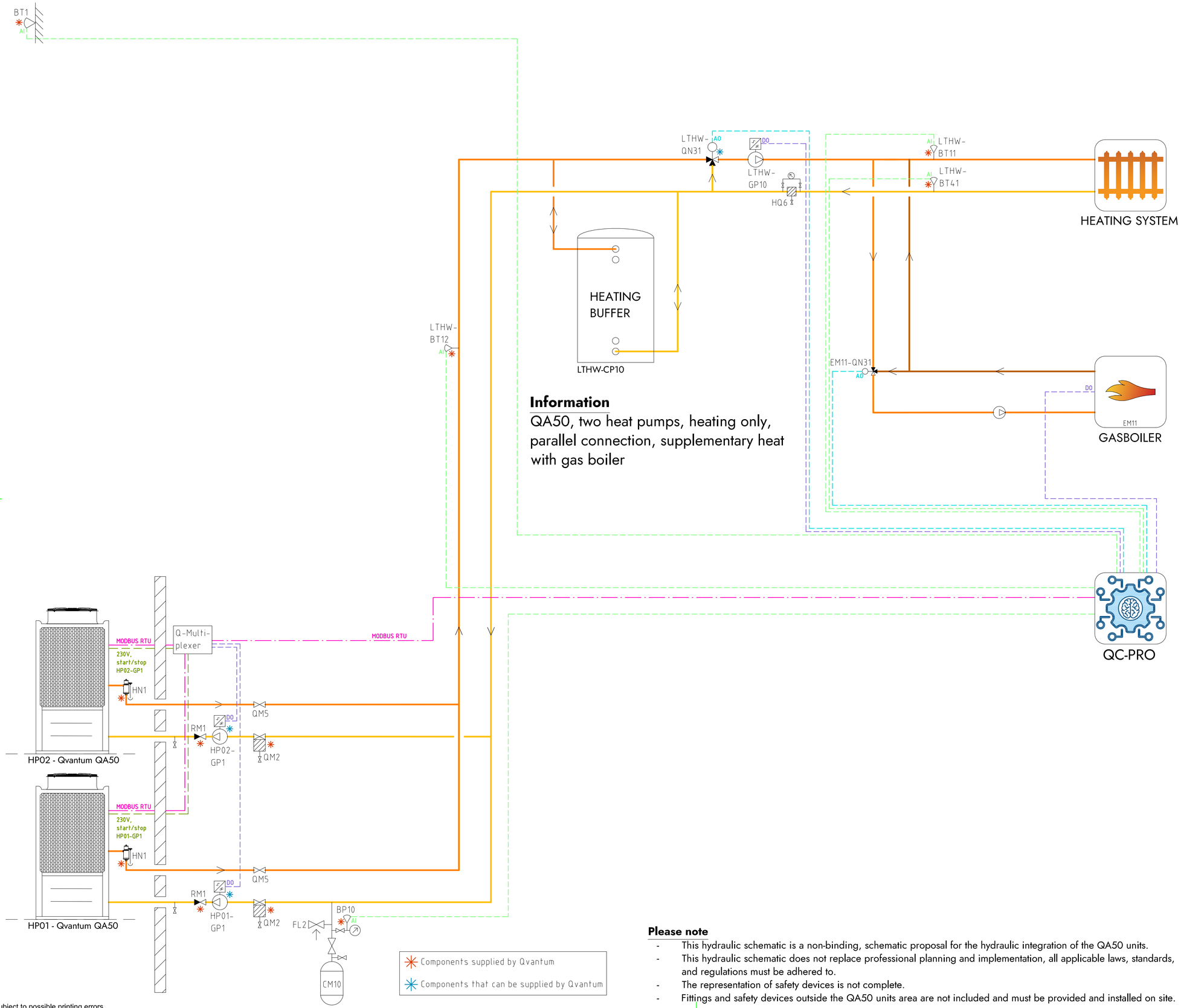
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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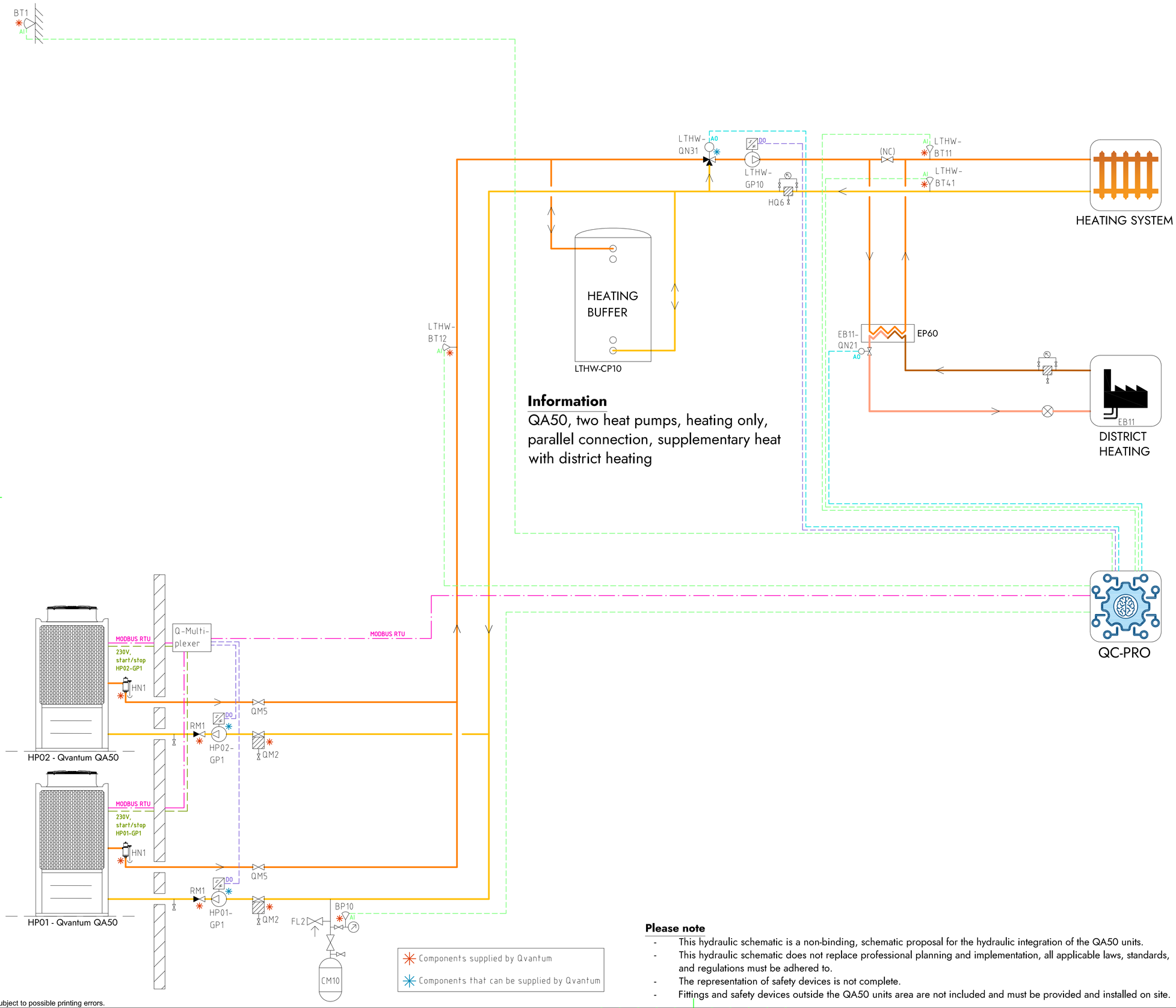
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating only, parallel connection, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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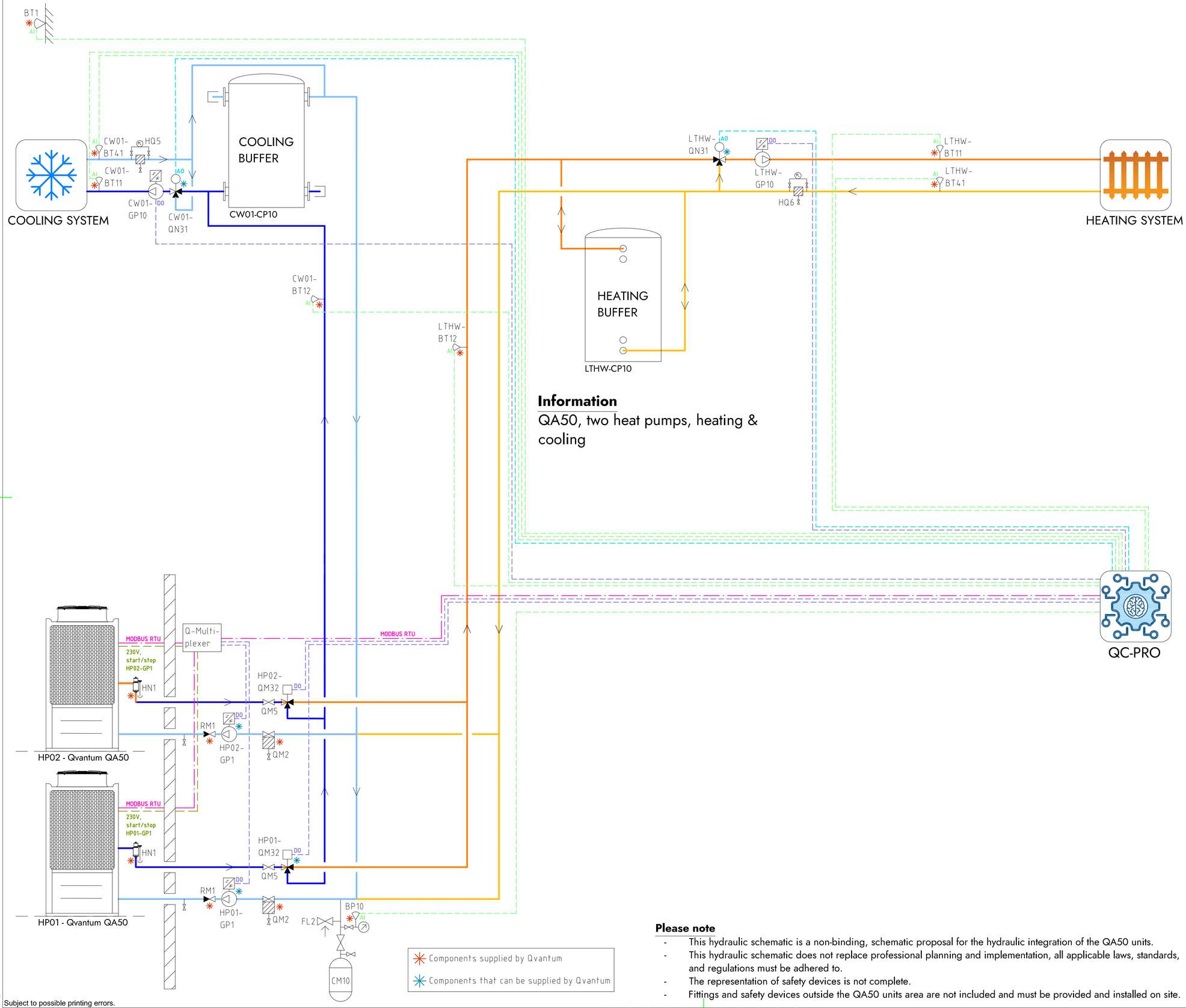
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & cooling

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

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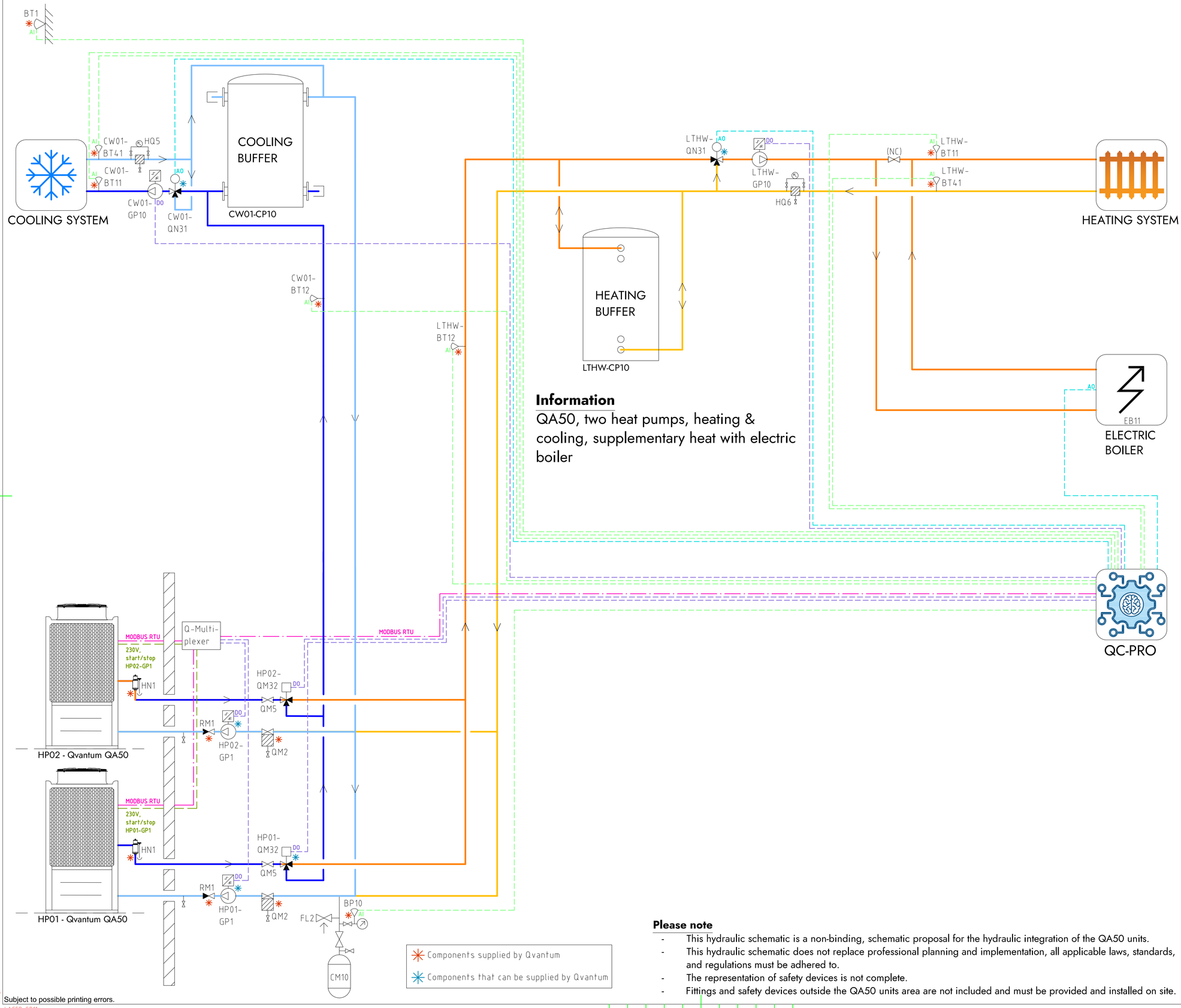
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & cooling, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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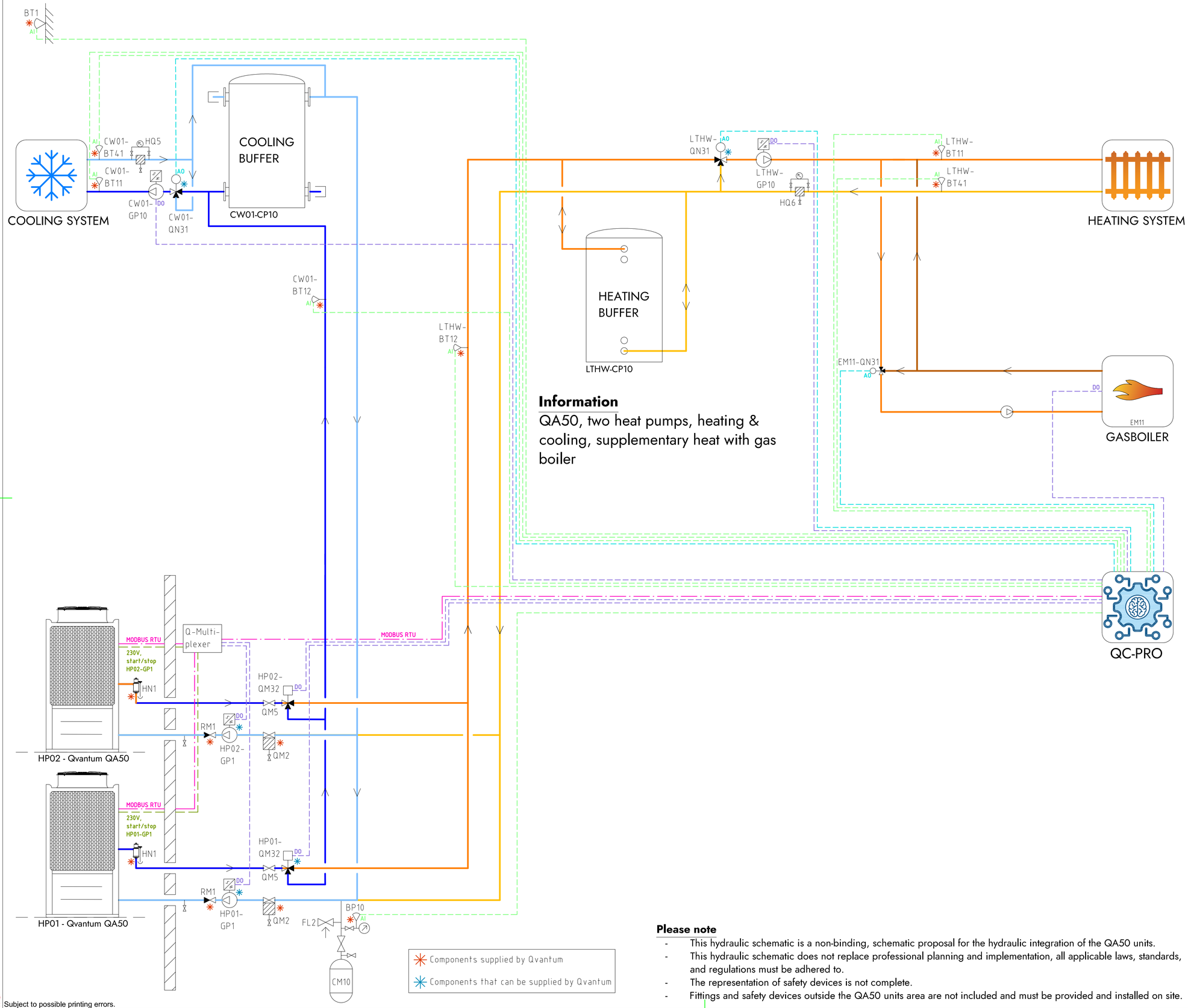
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & cooling, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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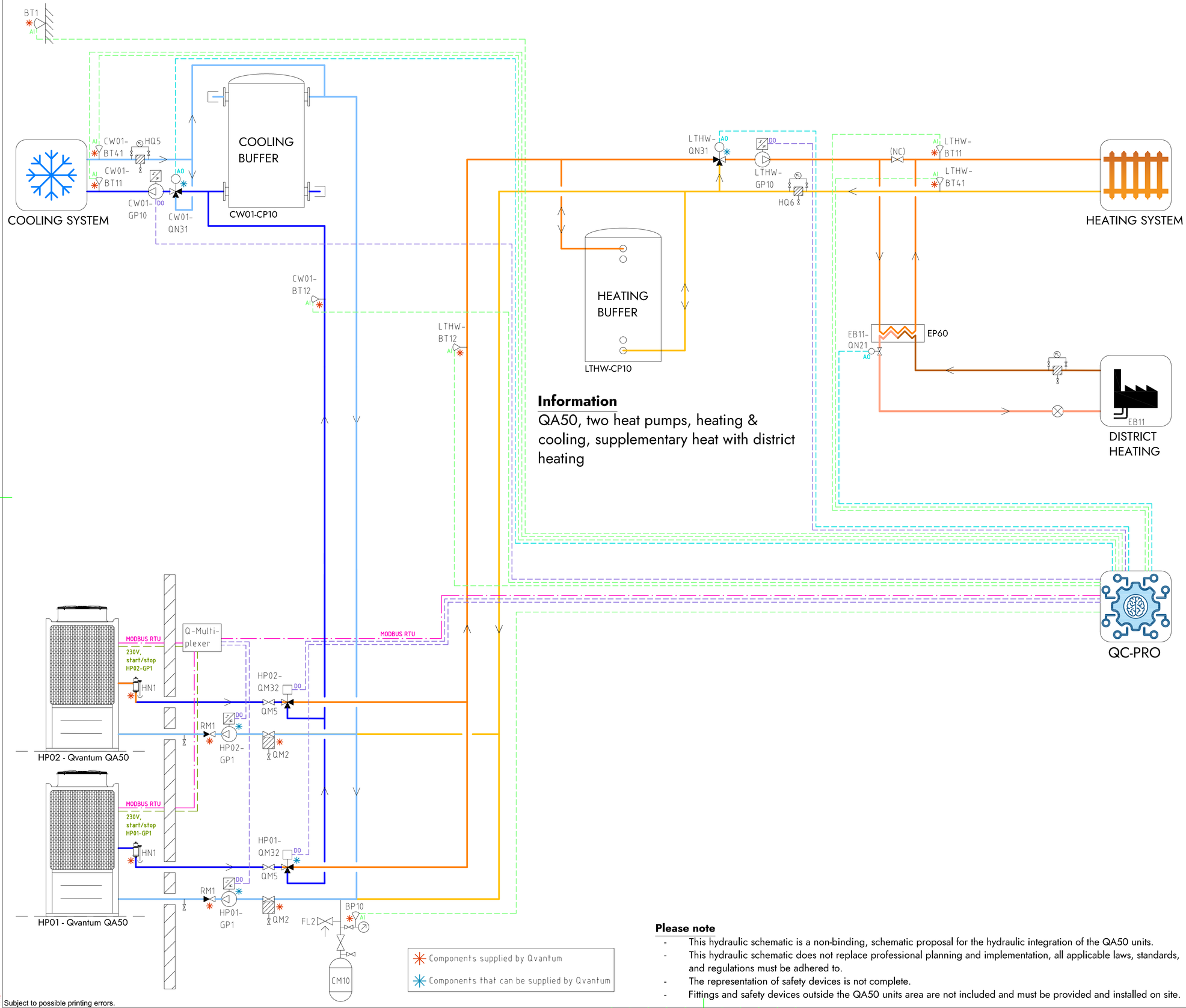
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & cooling, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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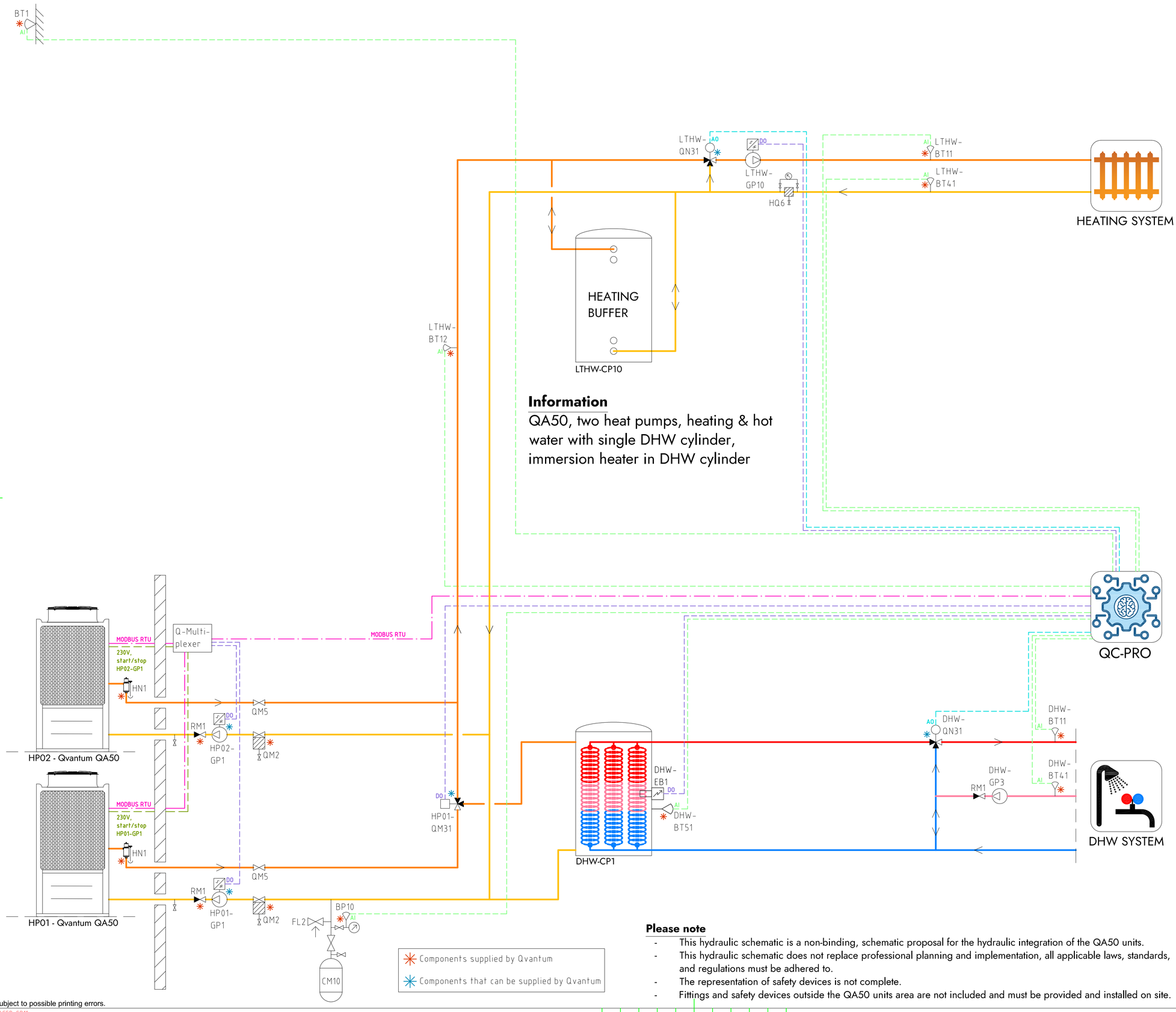
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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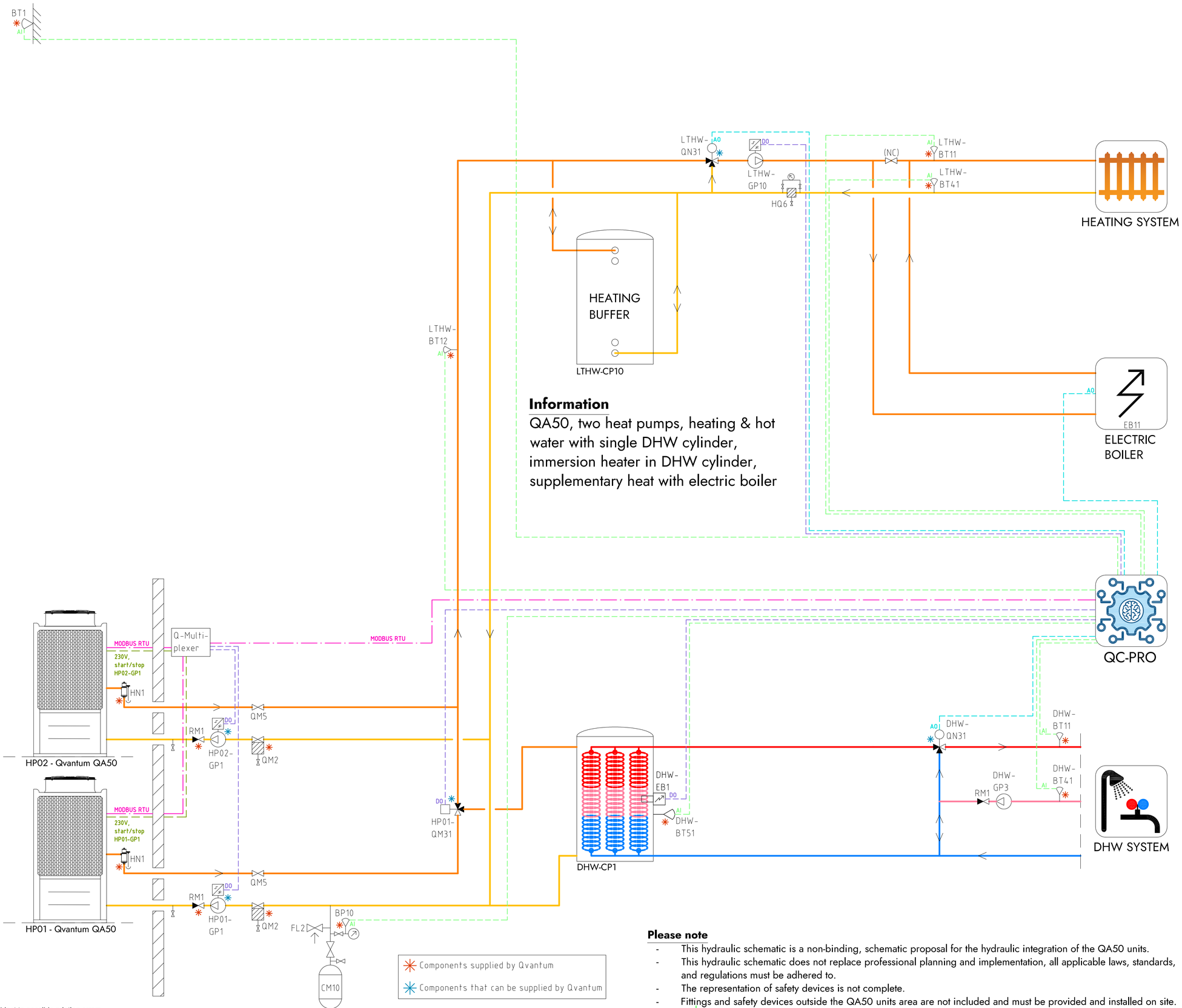
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric Boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

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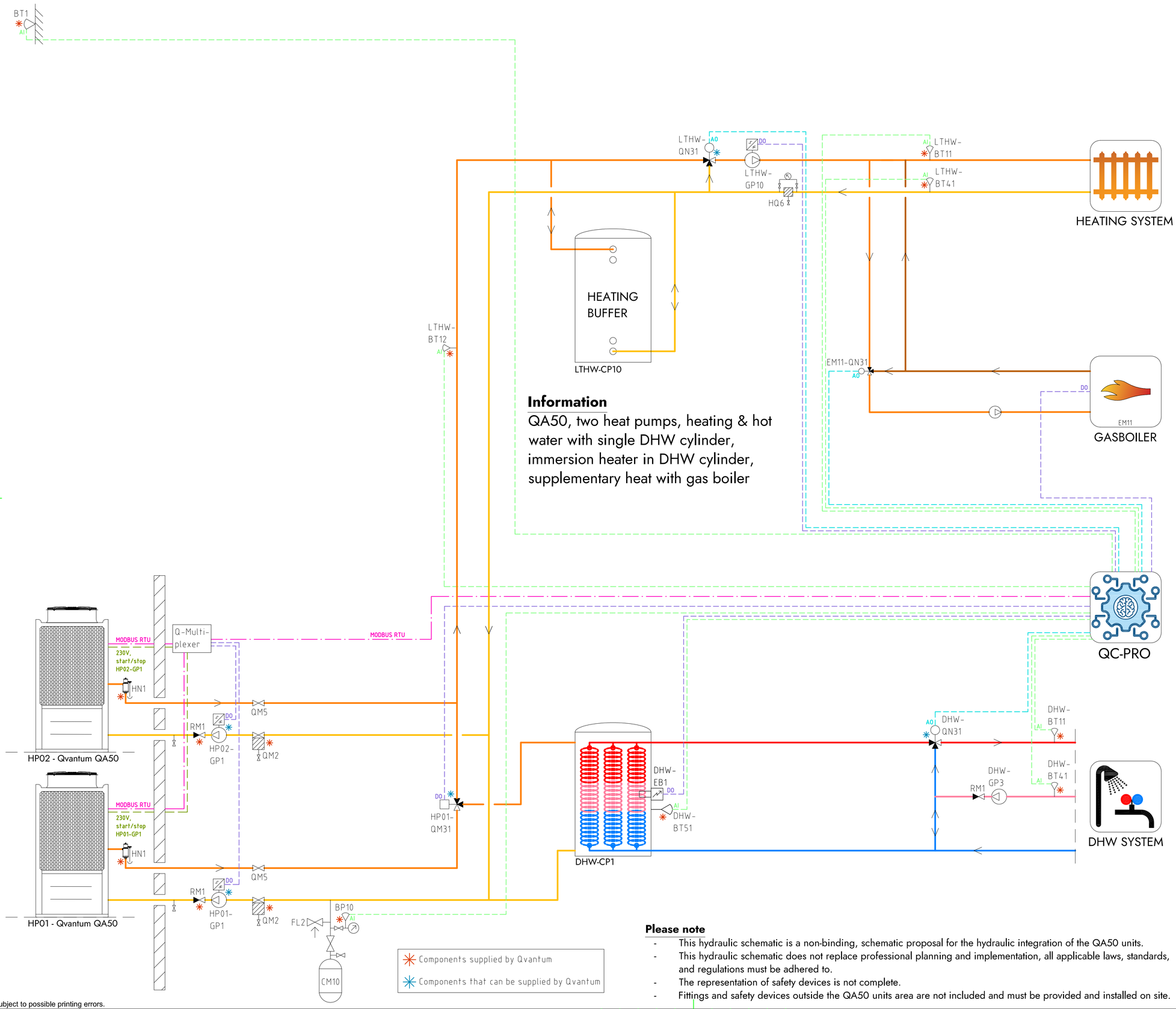
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

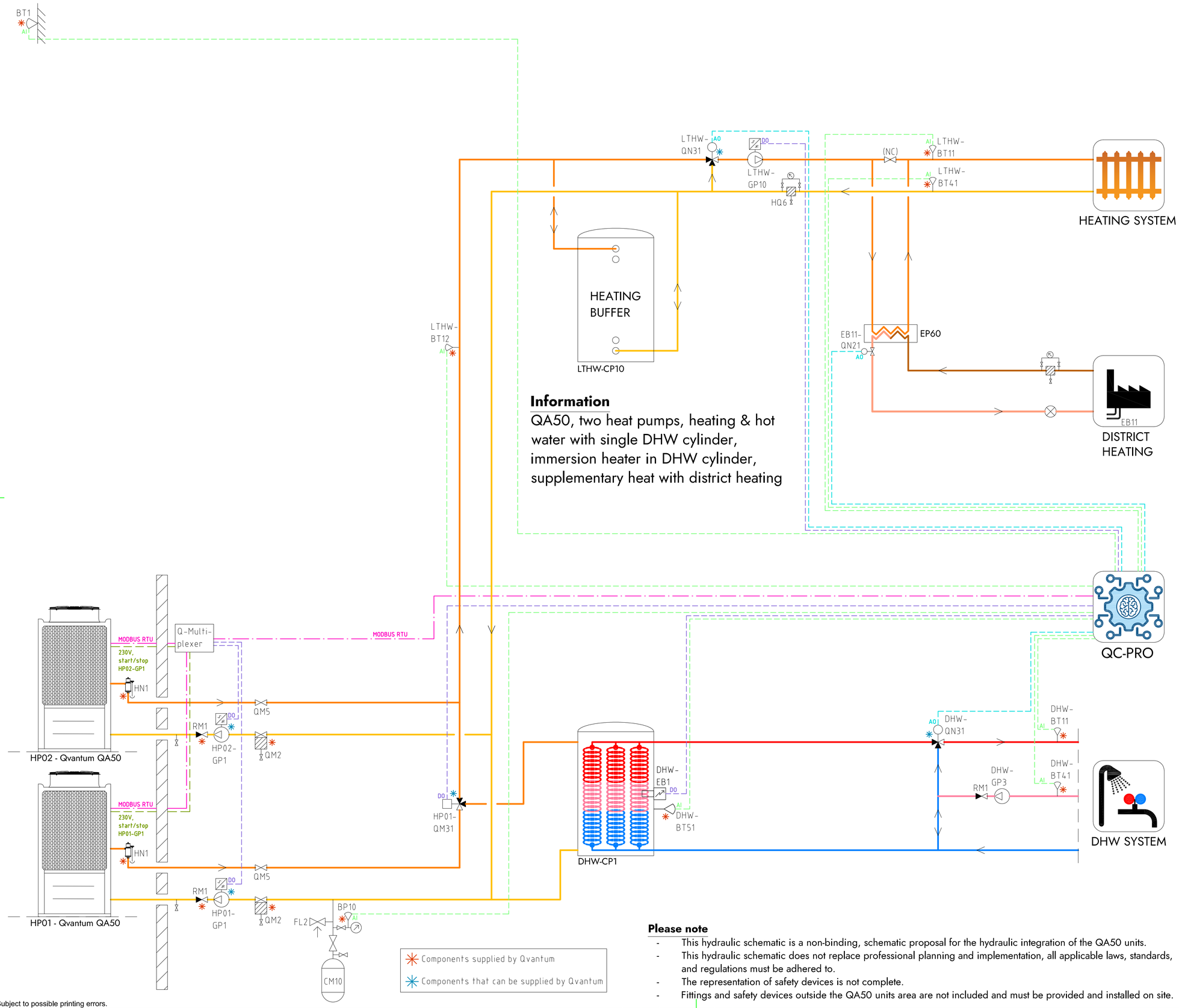
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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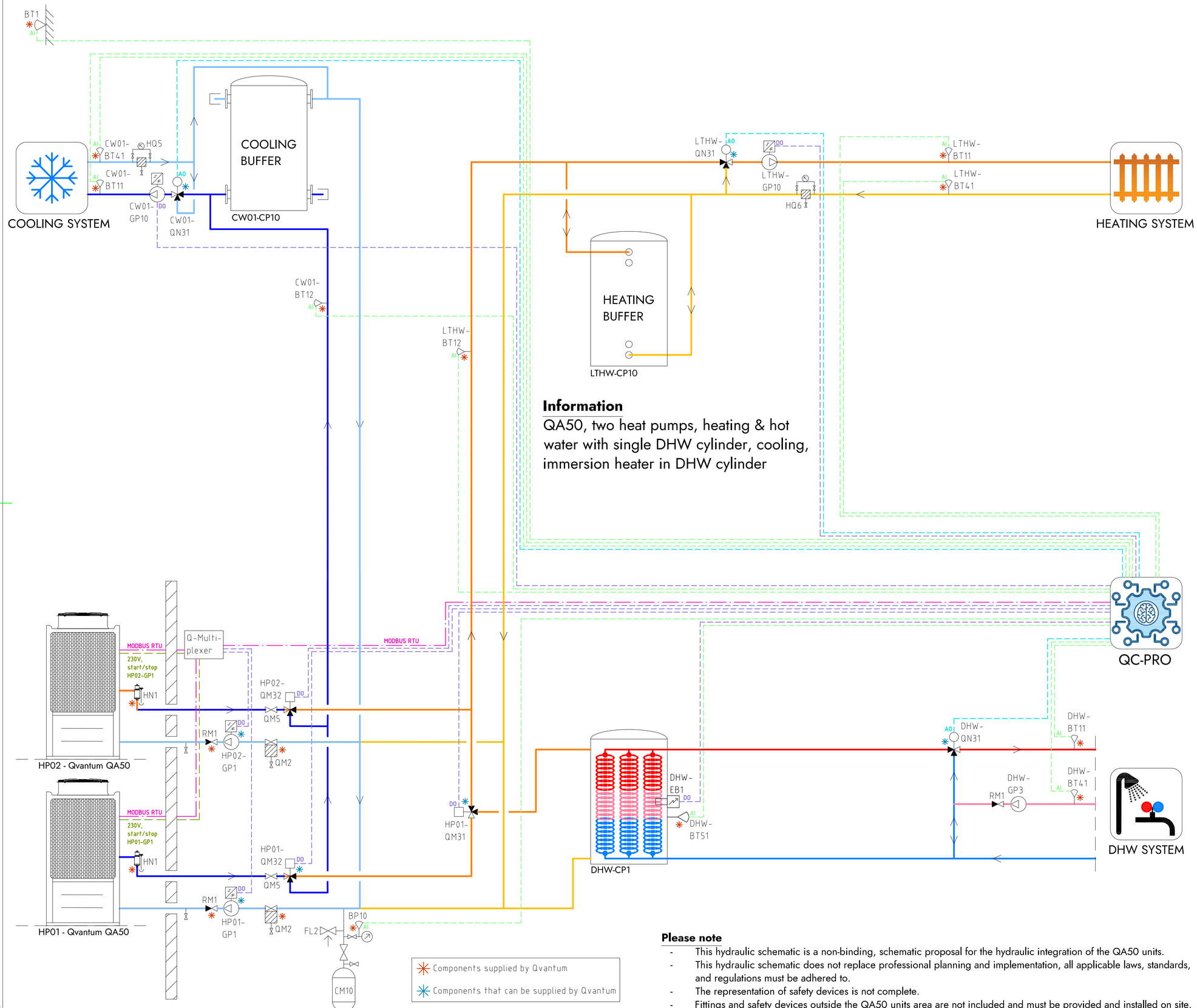
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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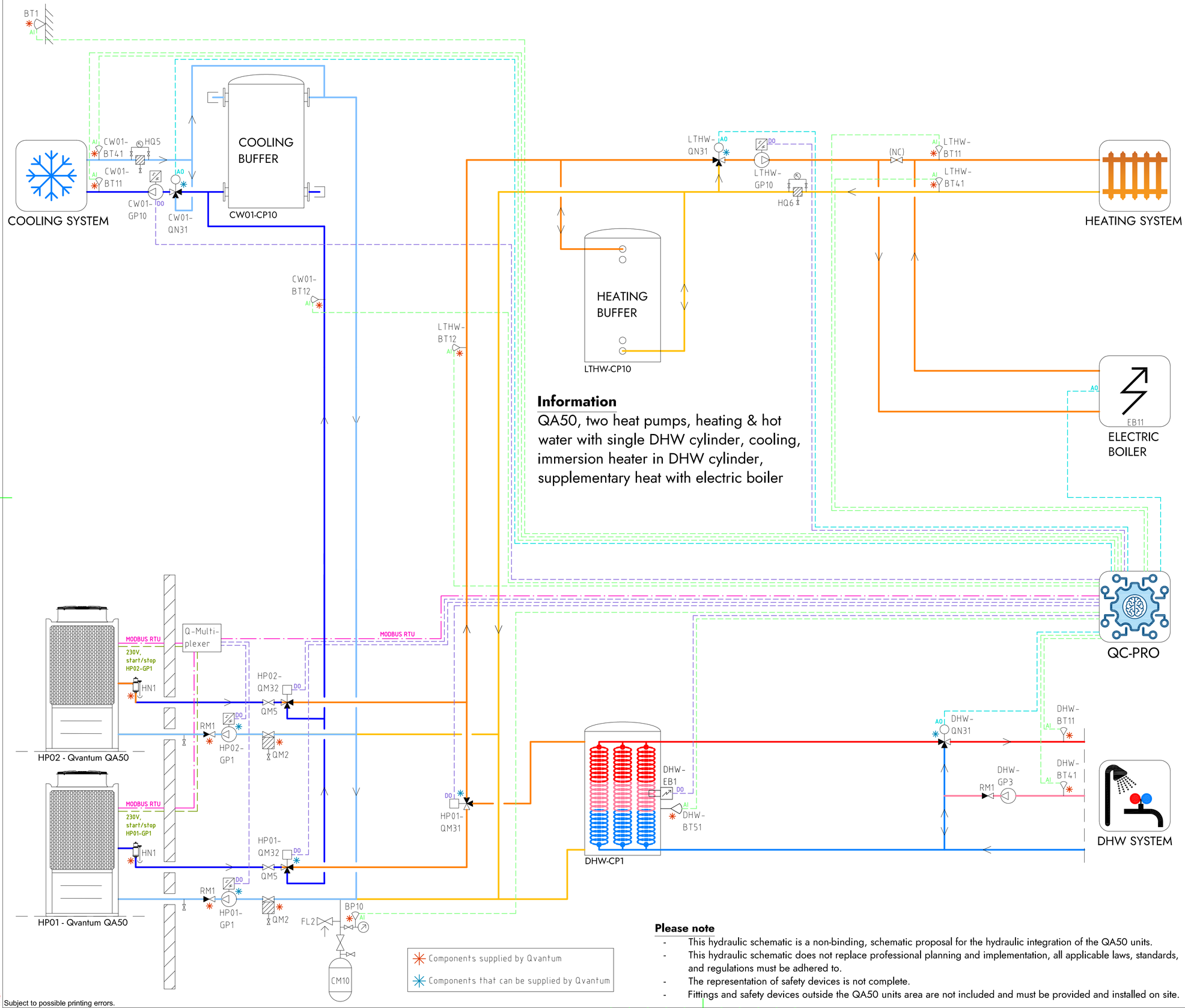
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with electric boiler

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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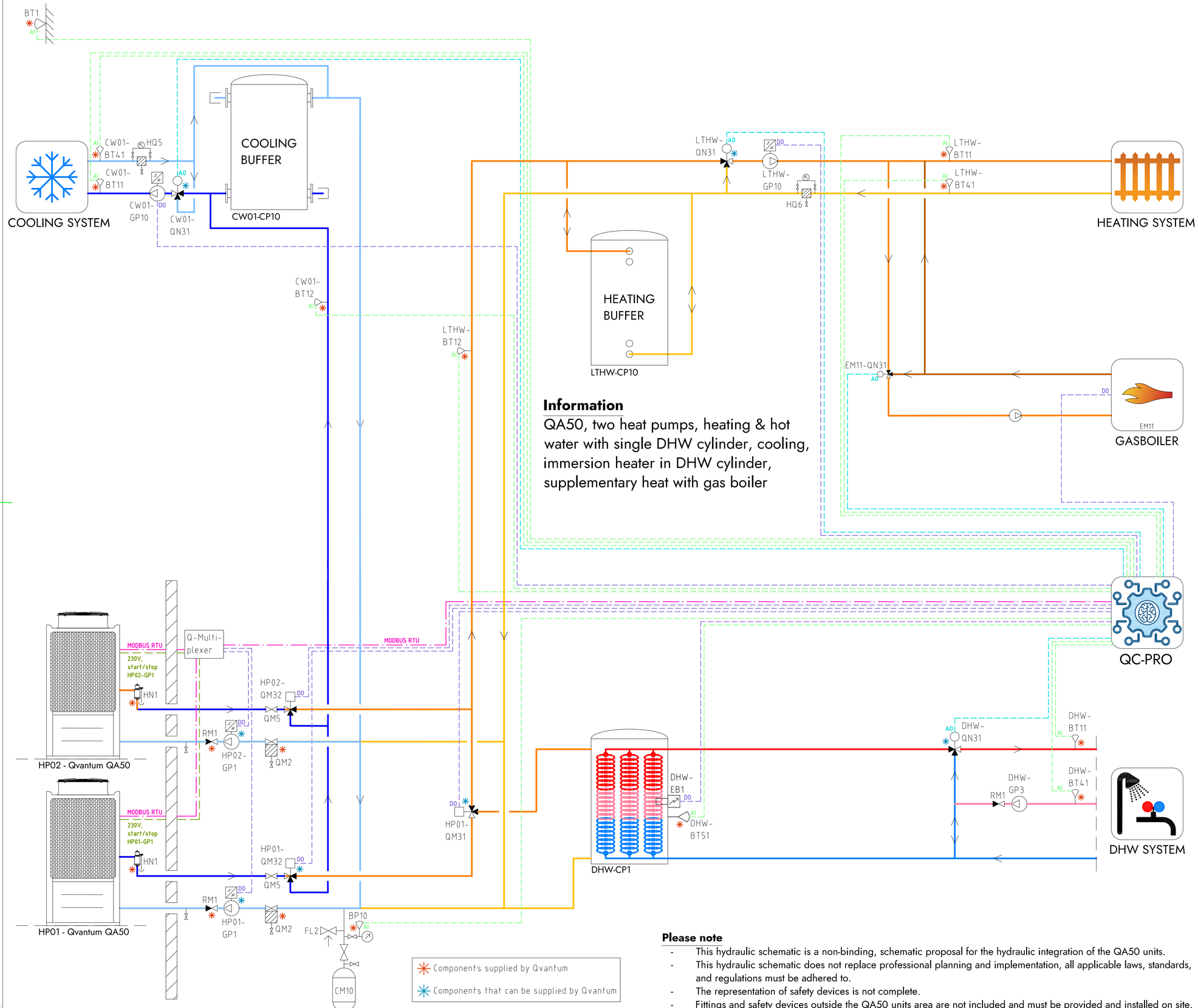
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with gas boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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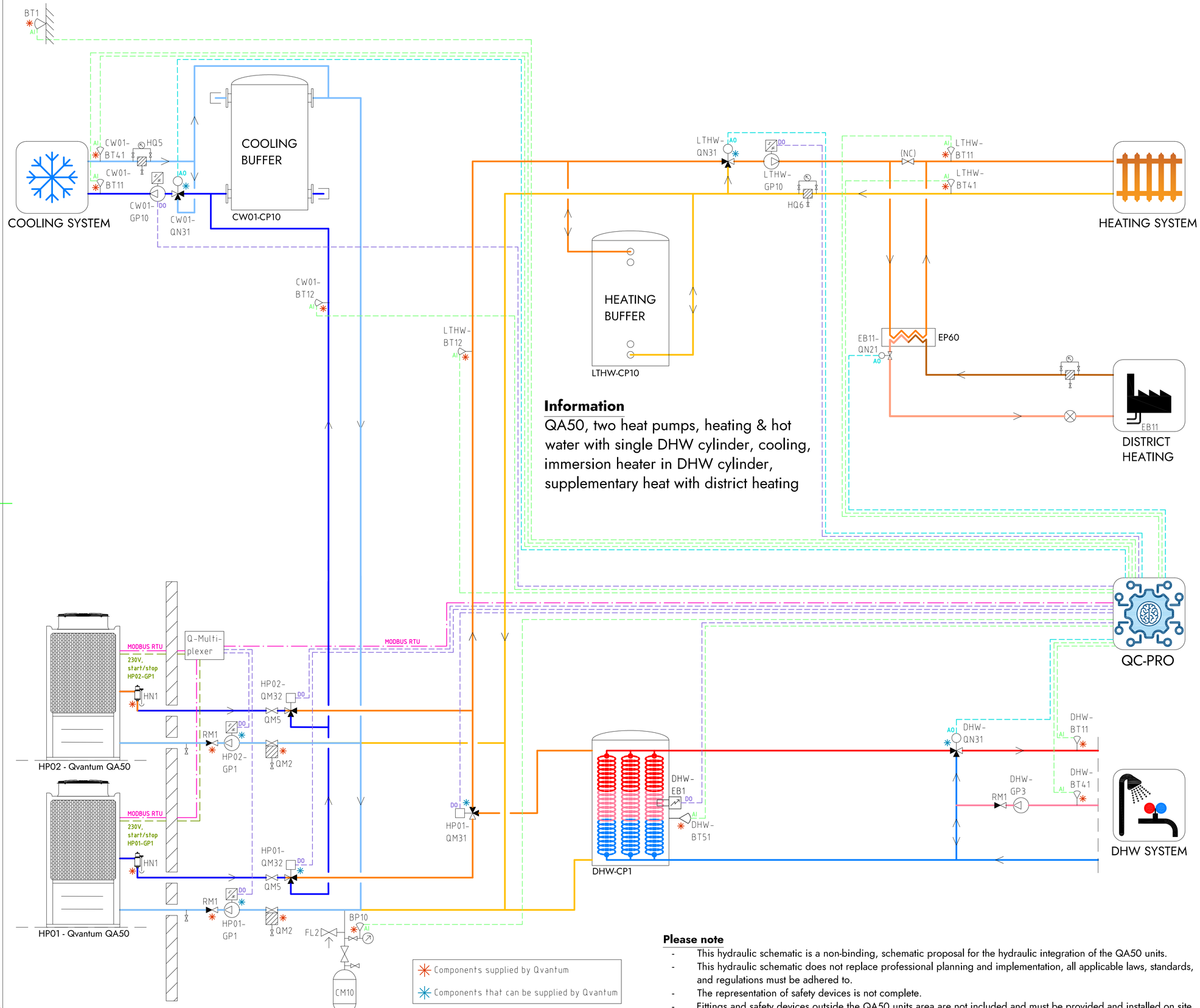
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with district heating

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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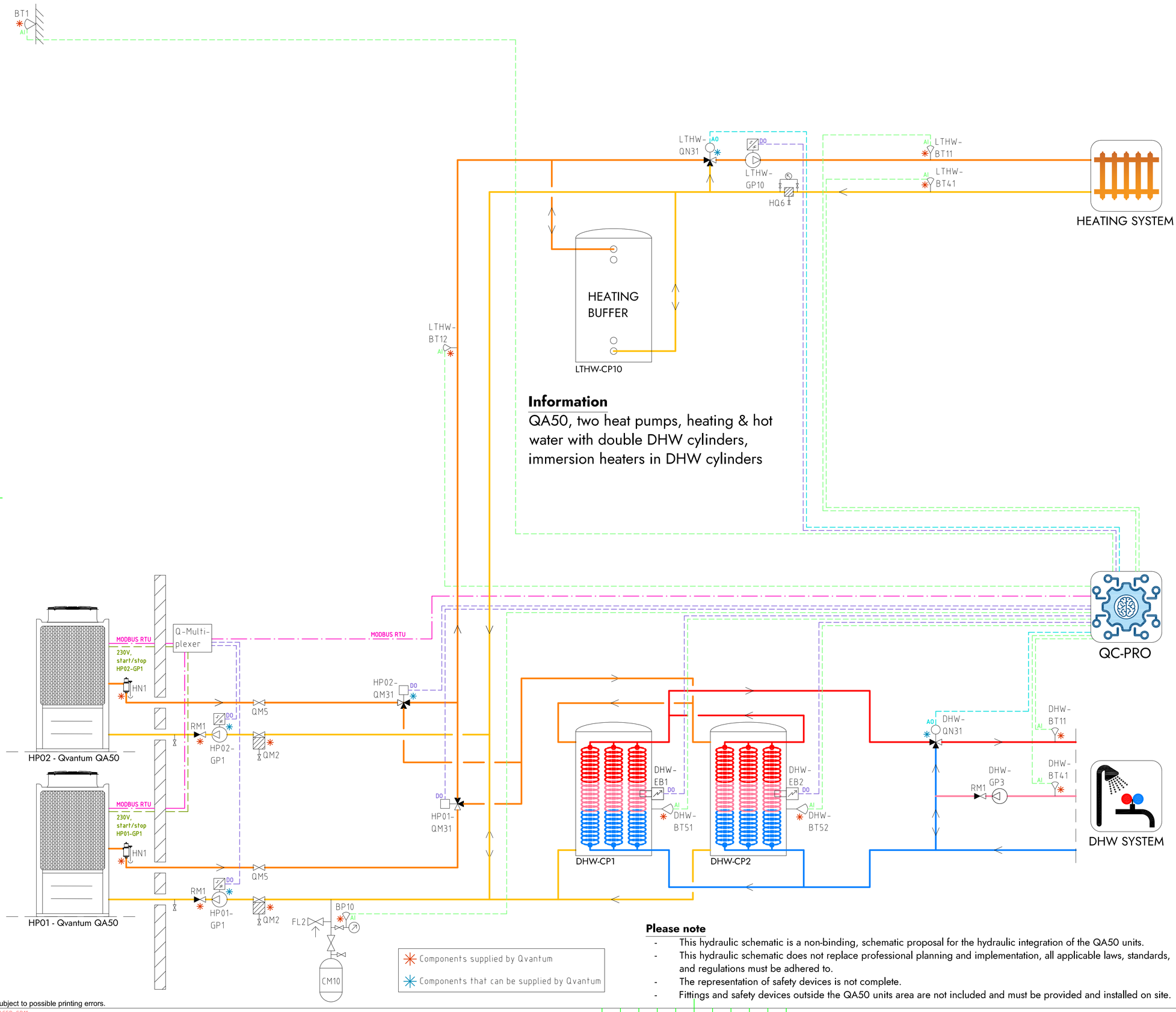
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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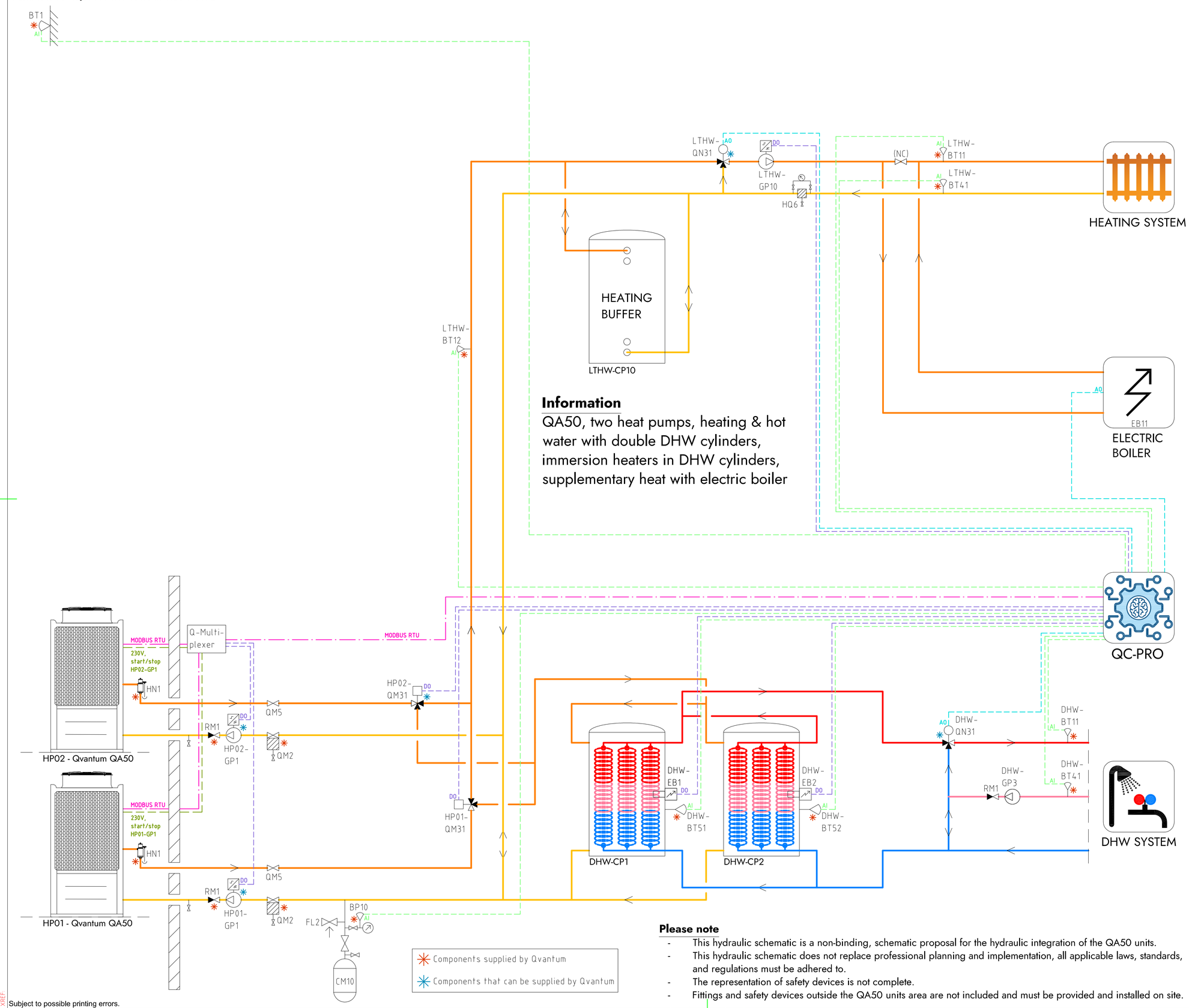
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

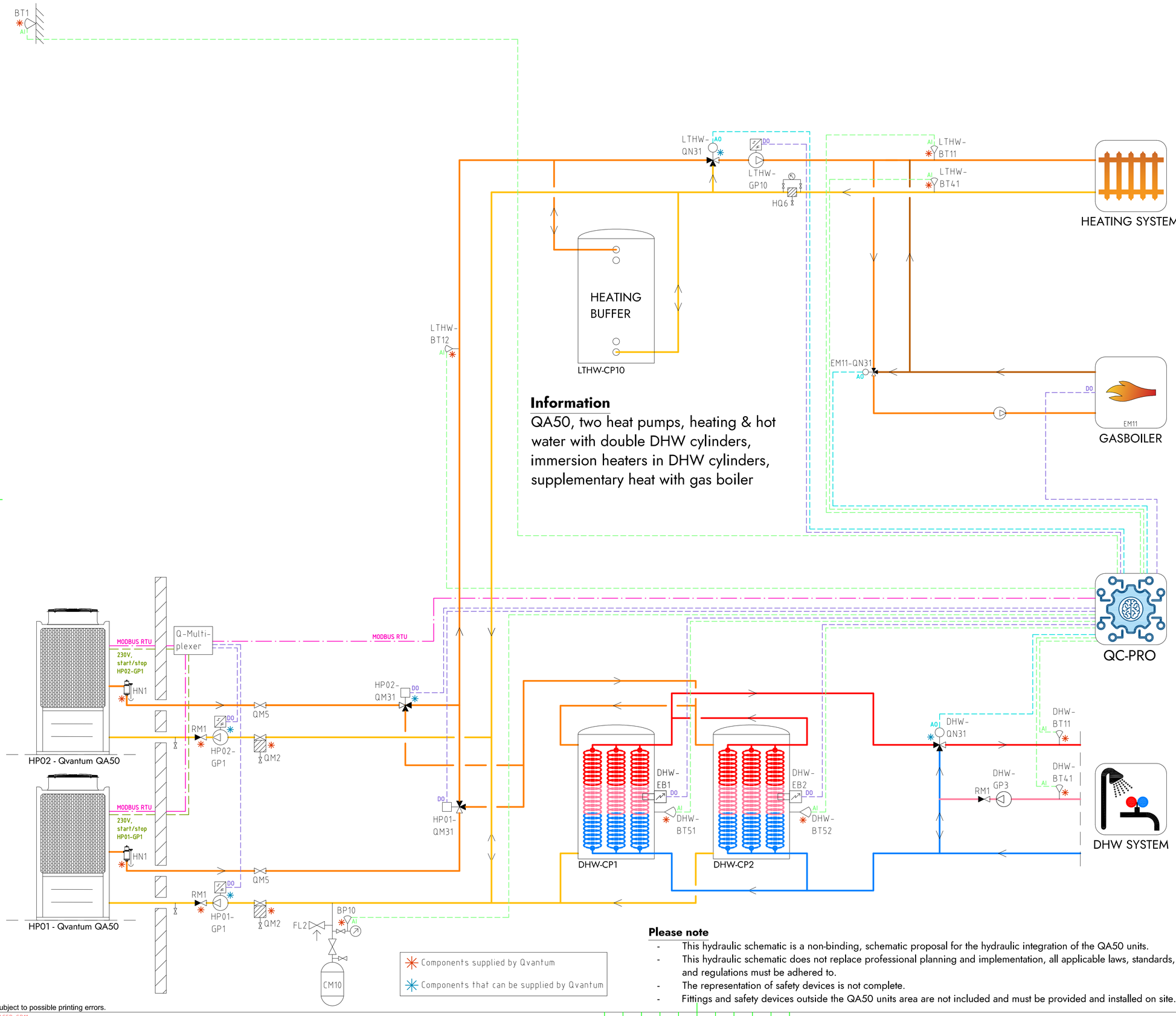
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with double DHW cylinders, immersion heaters in DHW cylinders, supplementary heat with gas boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

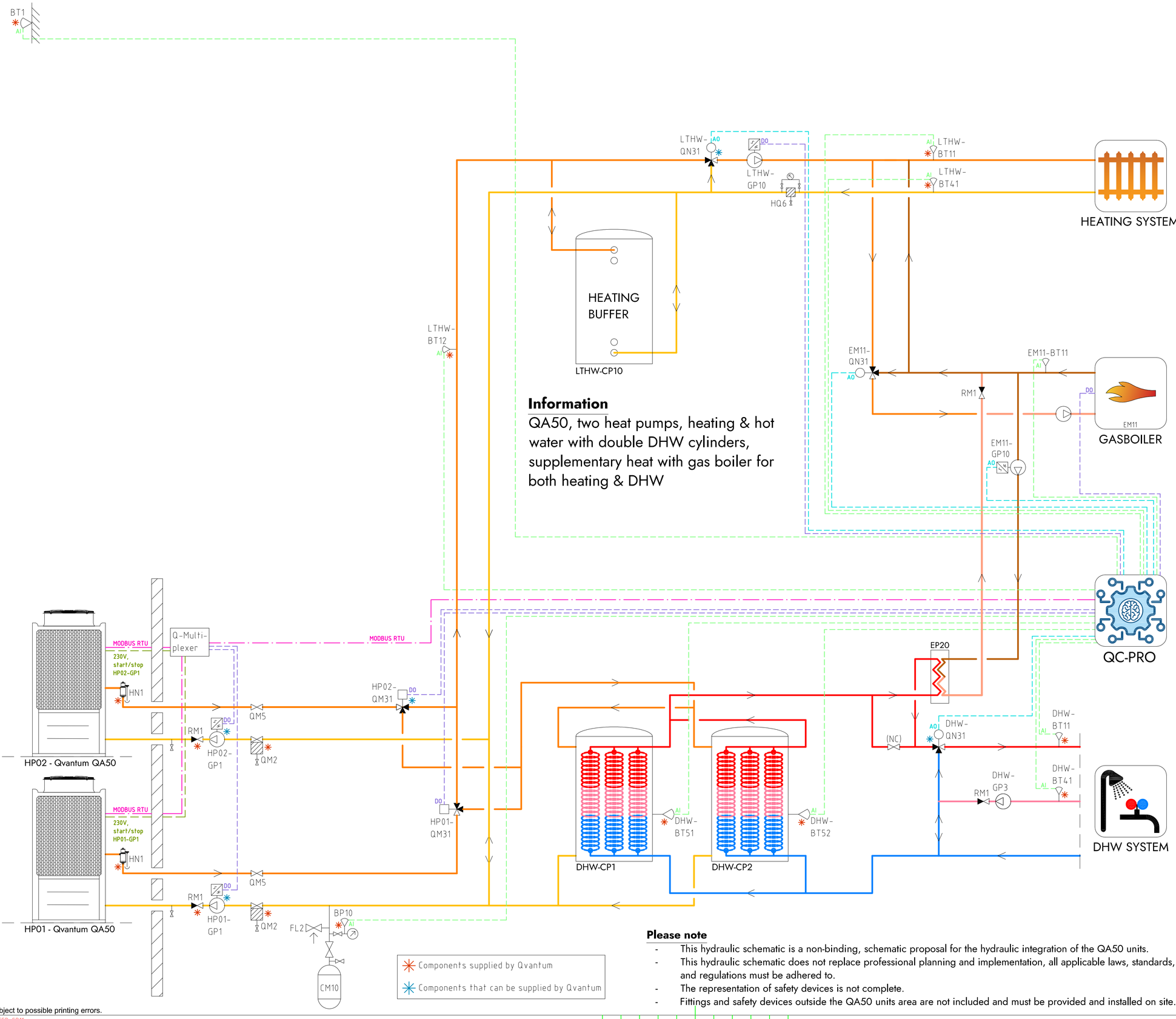
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-BT11 | Flow temperature, Gas boiler |
| EM11-GP10 | Circulation pump, Gas Boiler (DHW) |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

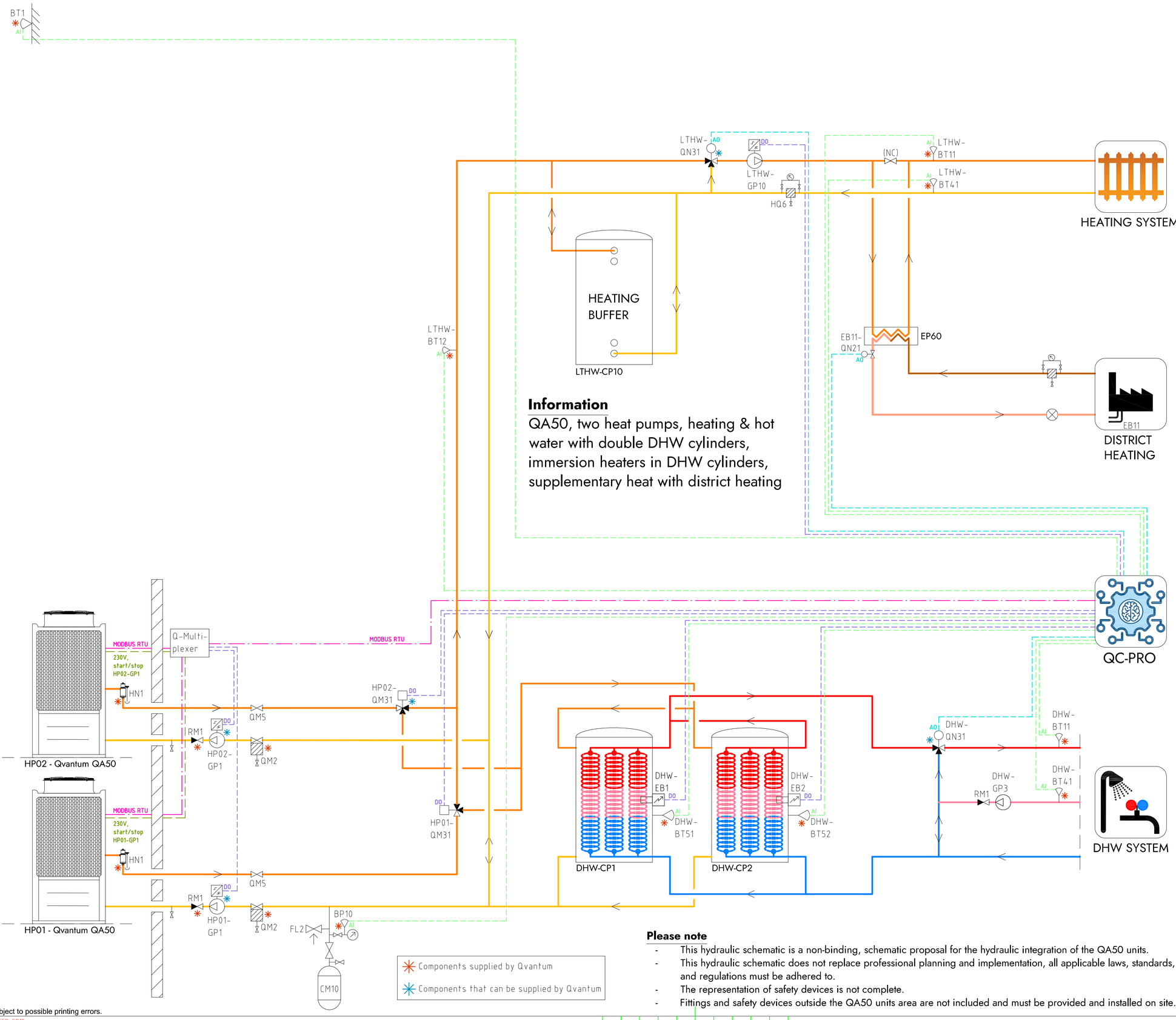
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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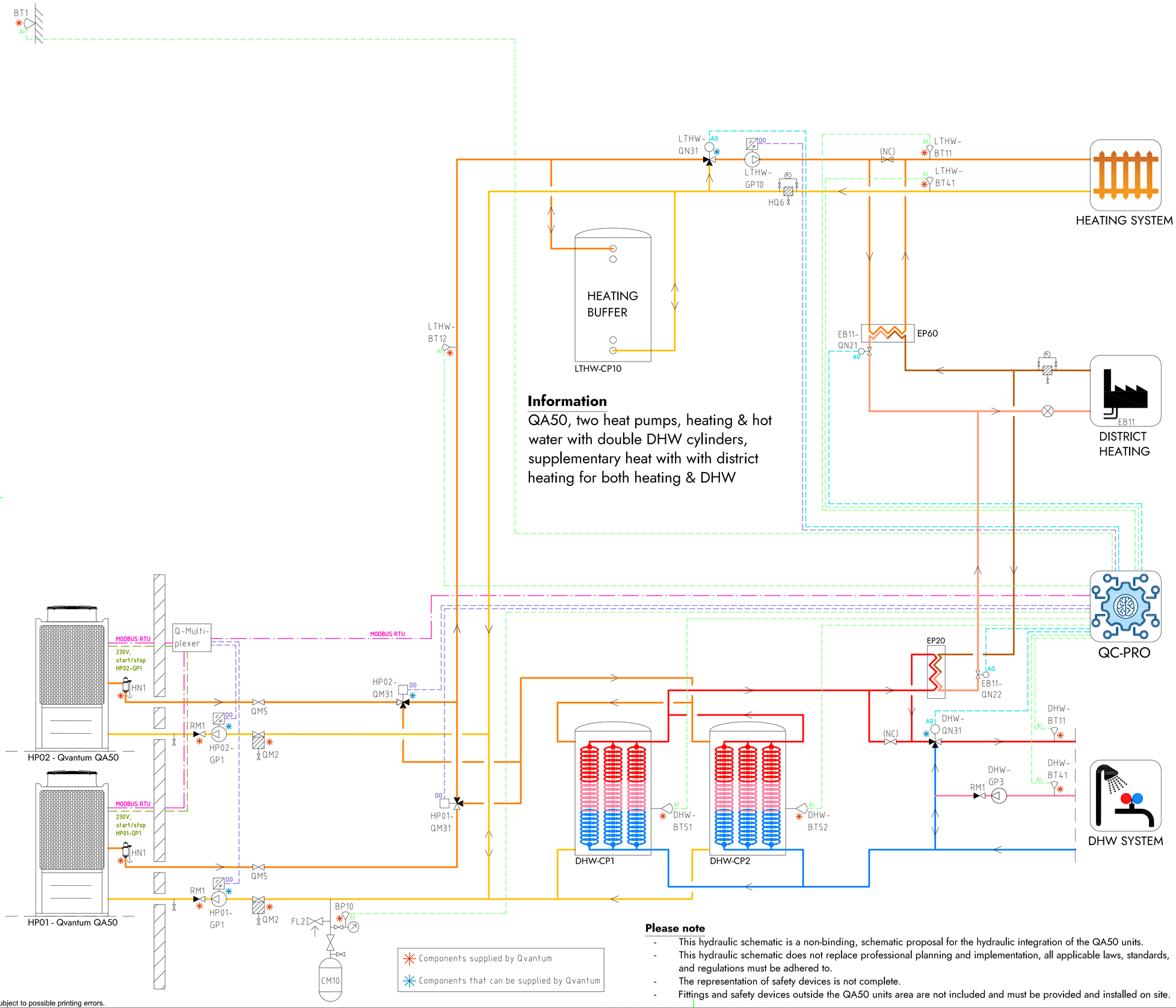
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

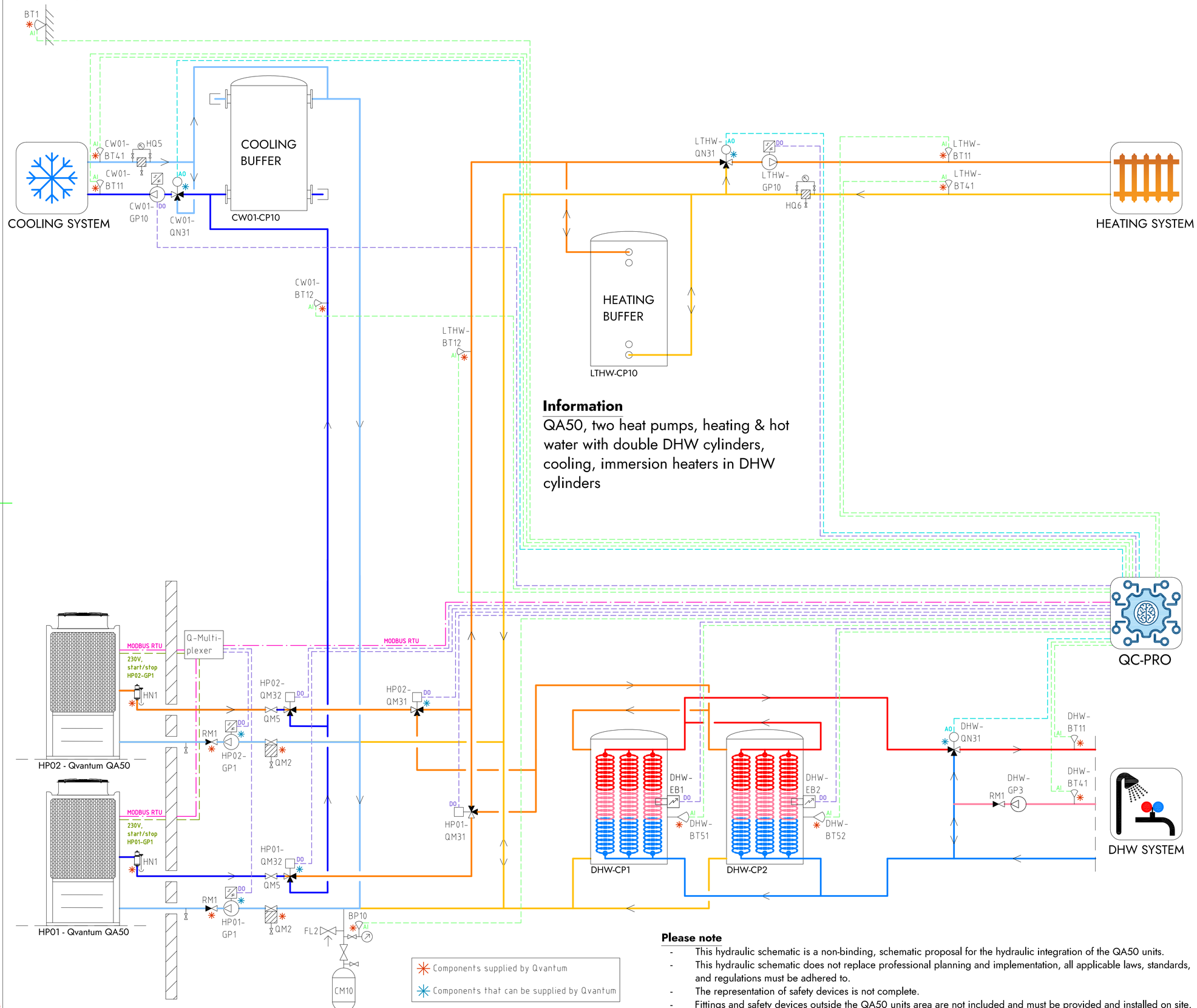
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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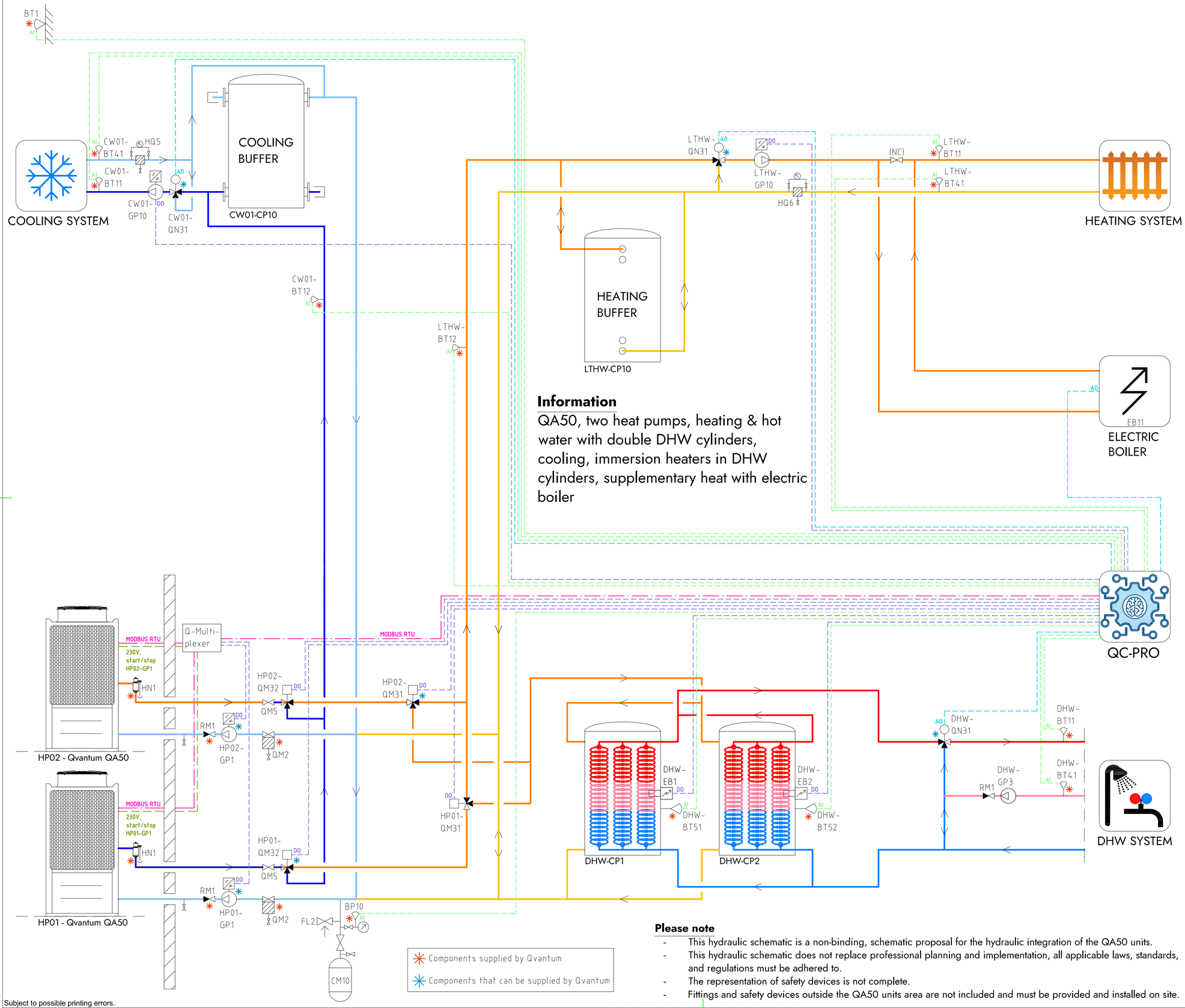
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with electric boiler

## Please note

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## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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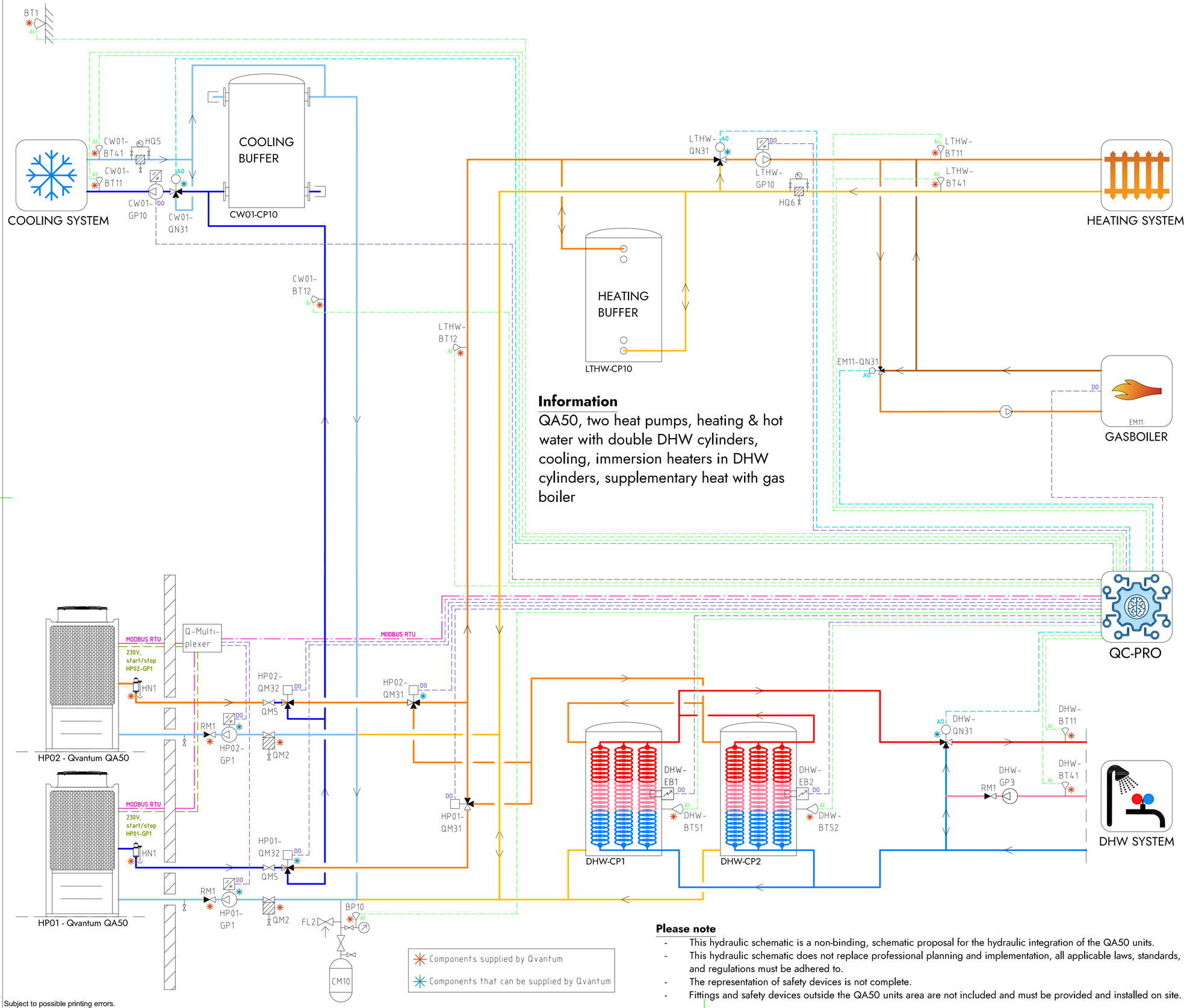
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with gas boiler

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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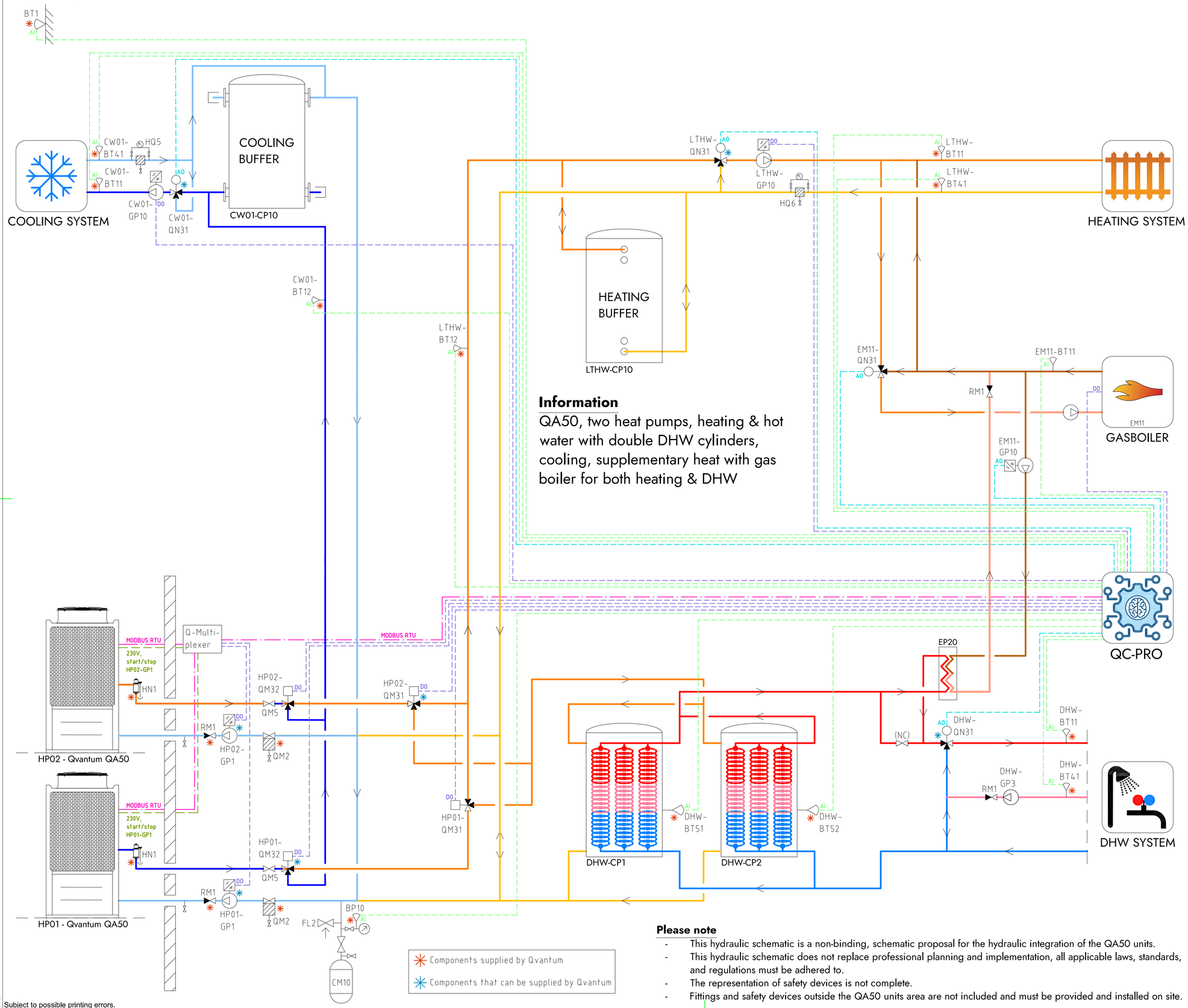
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with double DHW cylinders, cooling, supplementary heat with gas boiler for both heating & DHW

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-BT11 | Flow temperature, Gas boiler |
| EM11-GP10 | Circulation pump, Gas Boiler (DHW) |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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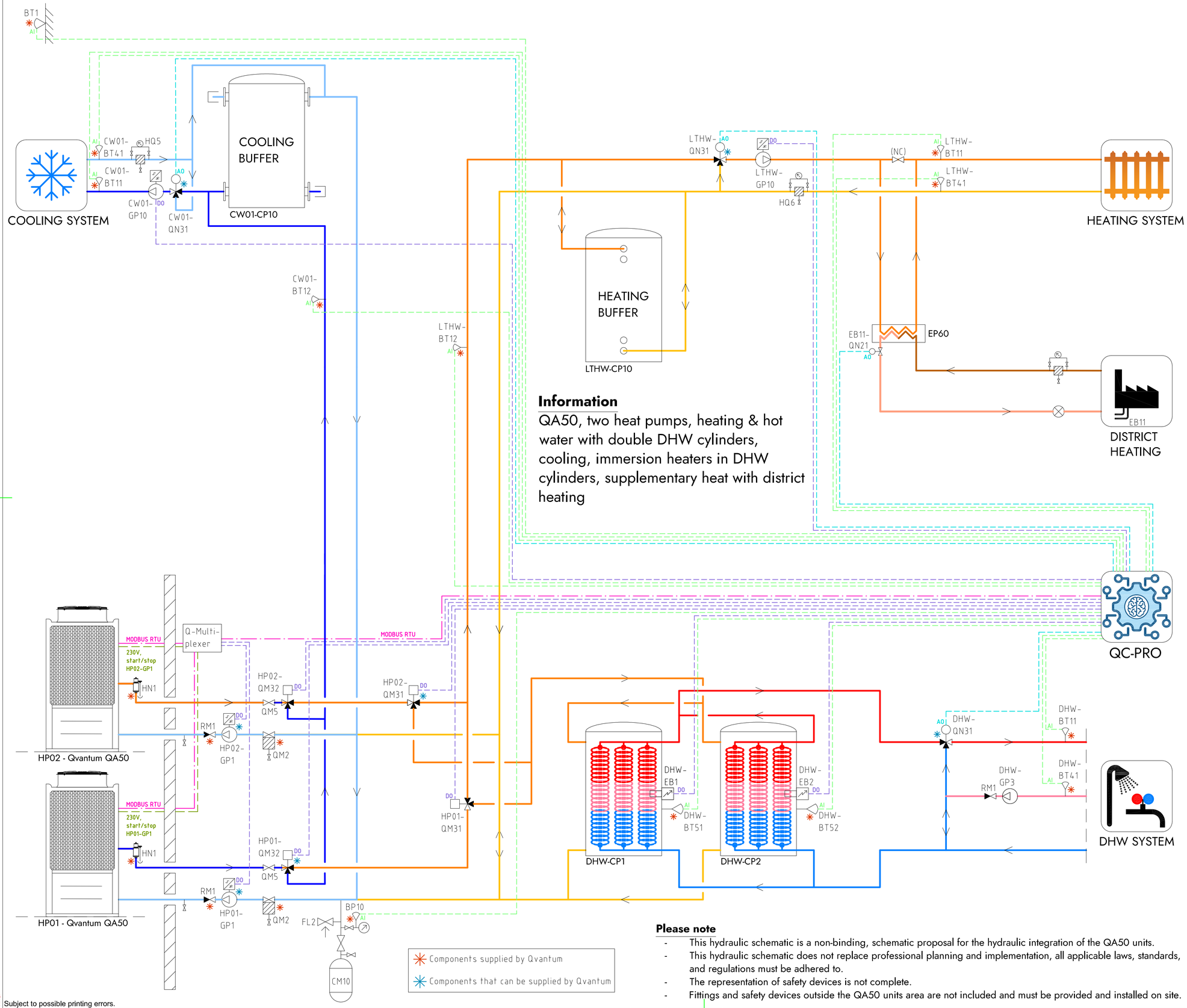
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with district heating

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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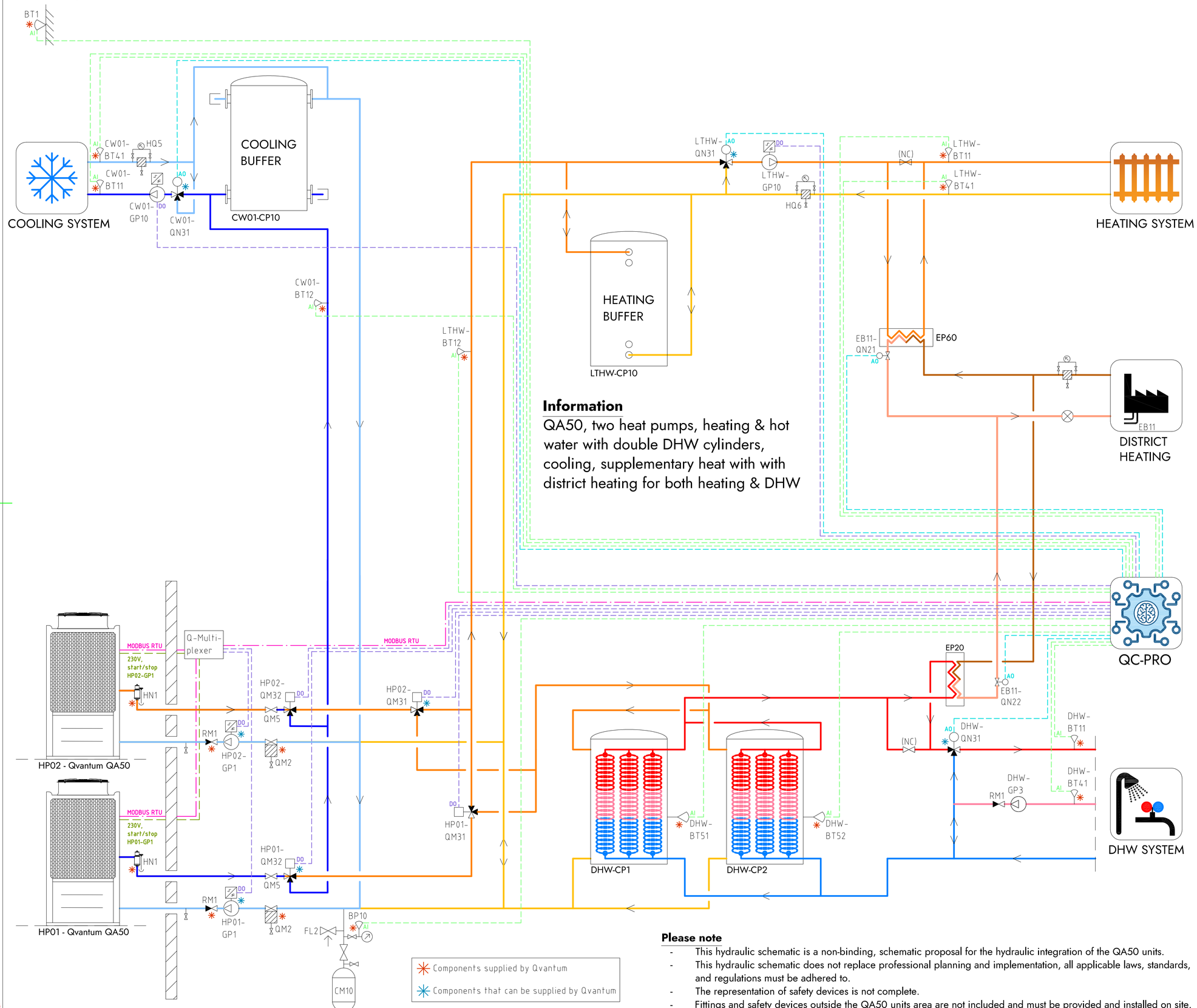
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, heating & hot water with double DHW cylinders, cooling, supplementary heat with with district heating for both heating & DHW

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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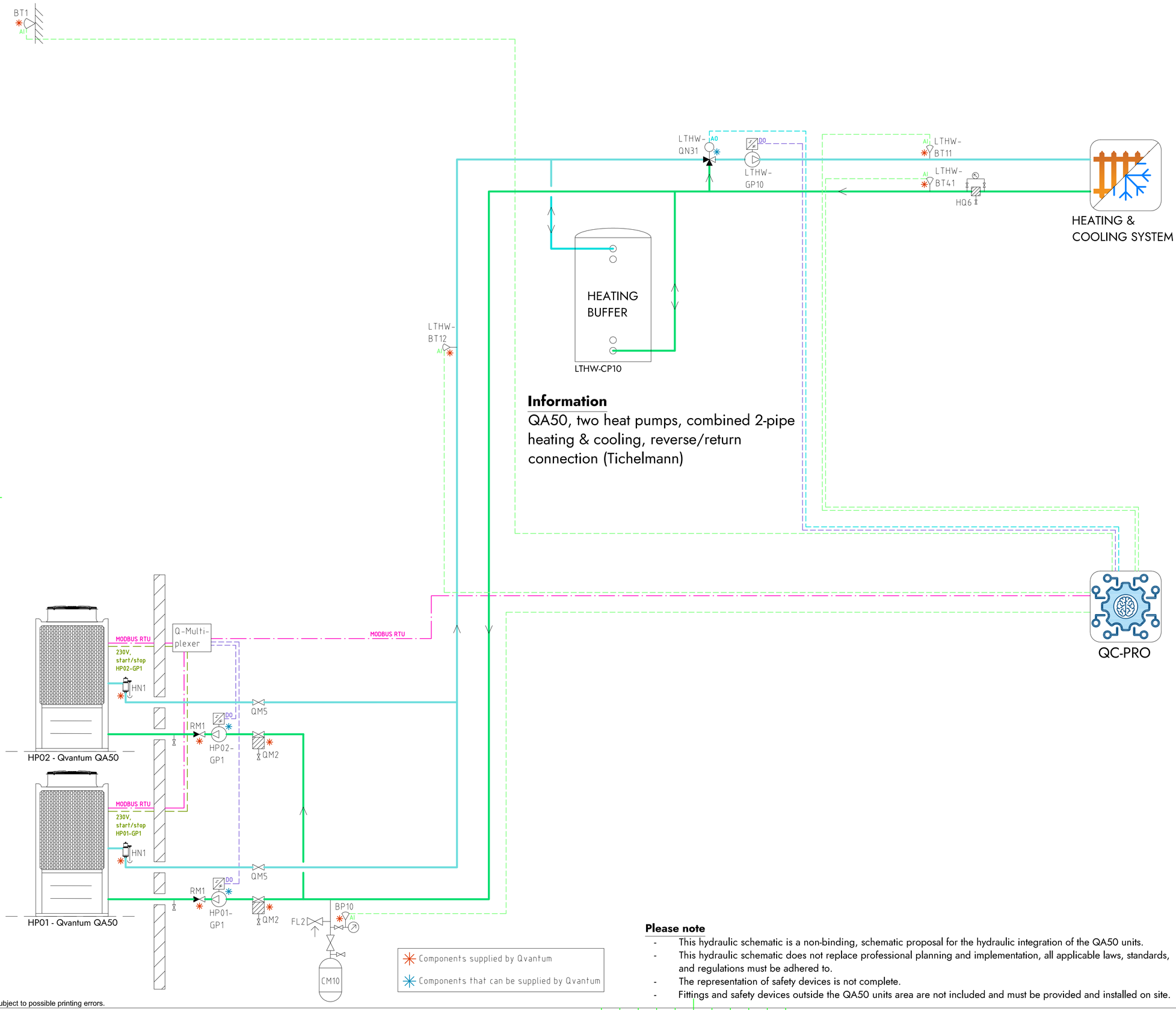
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, two heat pumps, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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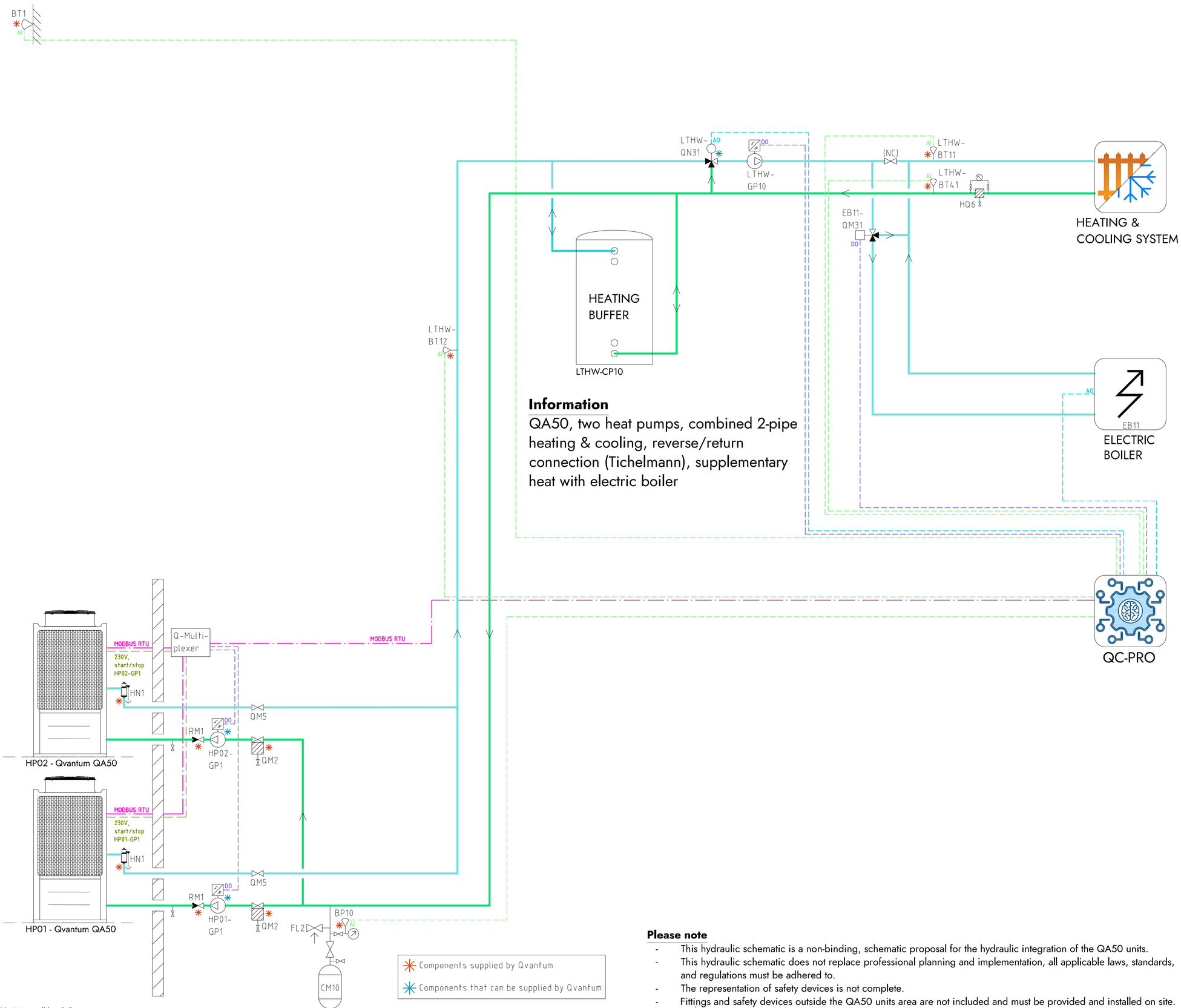
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Classification of objects in accordance with IEC 81346-2.




**Information**

QA50, two heat pumps, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann), supplementary heat with electric boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES

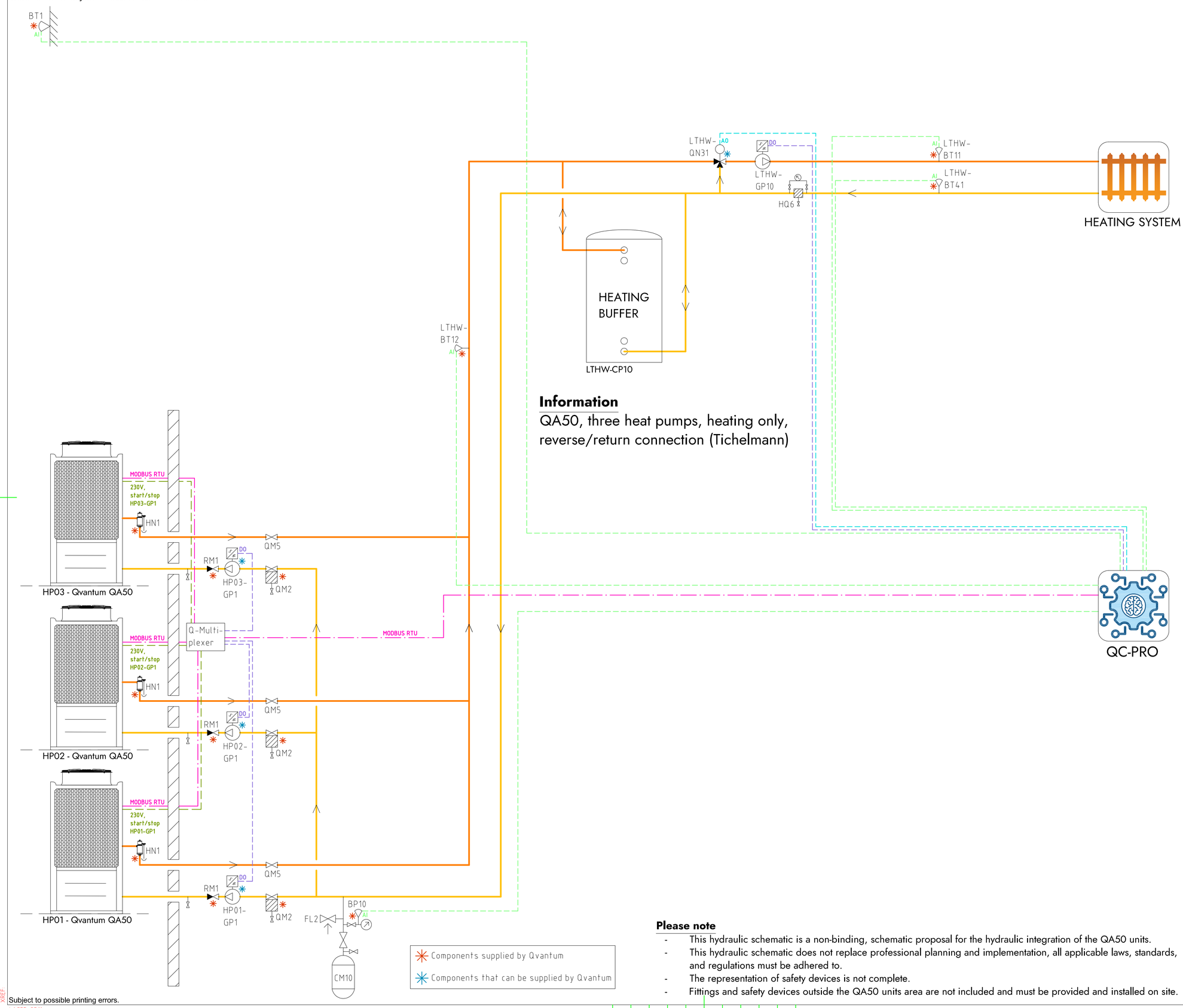
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with three heat pumps

Subject to possible printing errors.

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, reverse/return connection (Tichelmann)

Components supplied by Qvantum

Components that can be supplied by Qvantum

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

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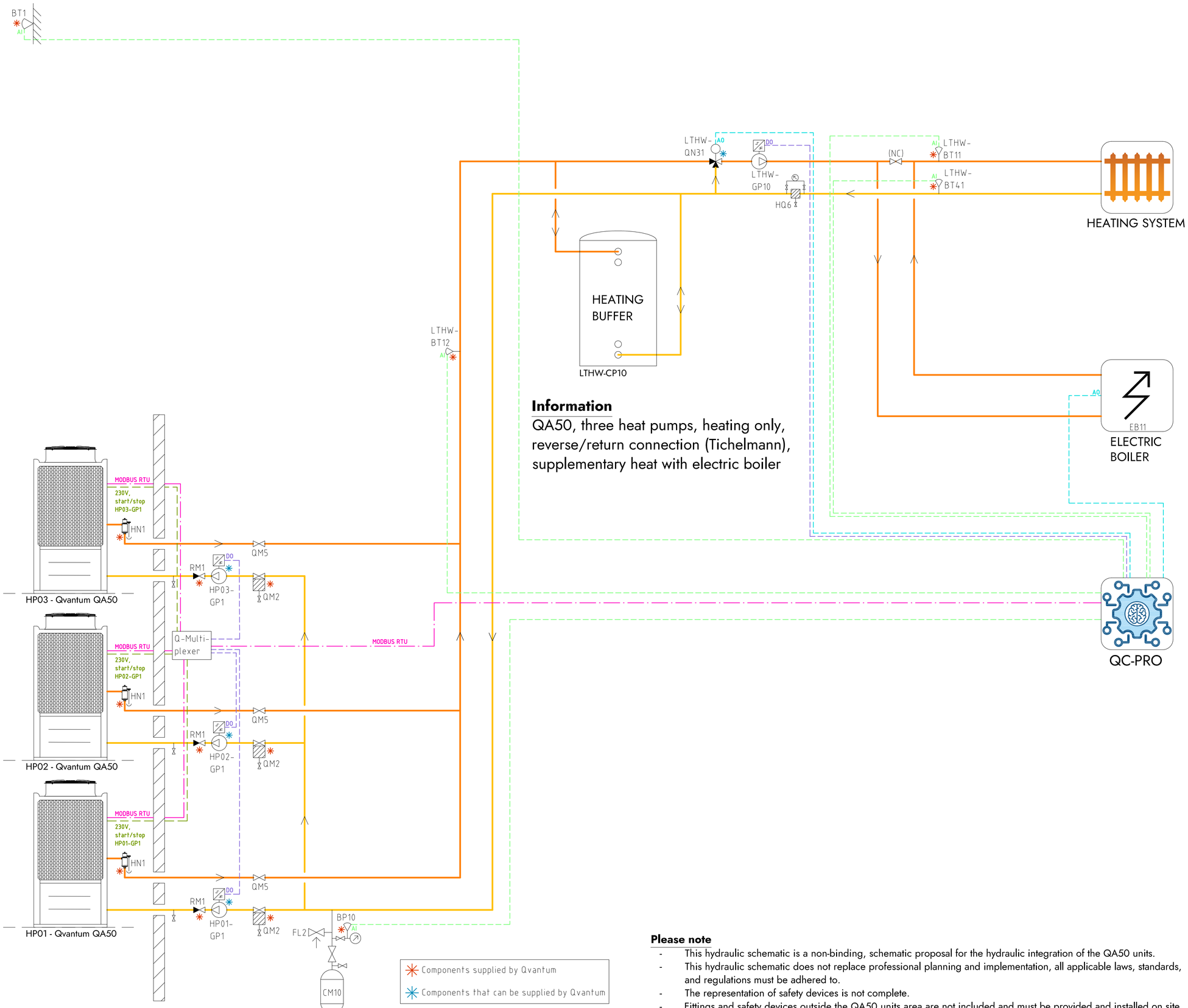
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with electric boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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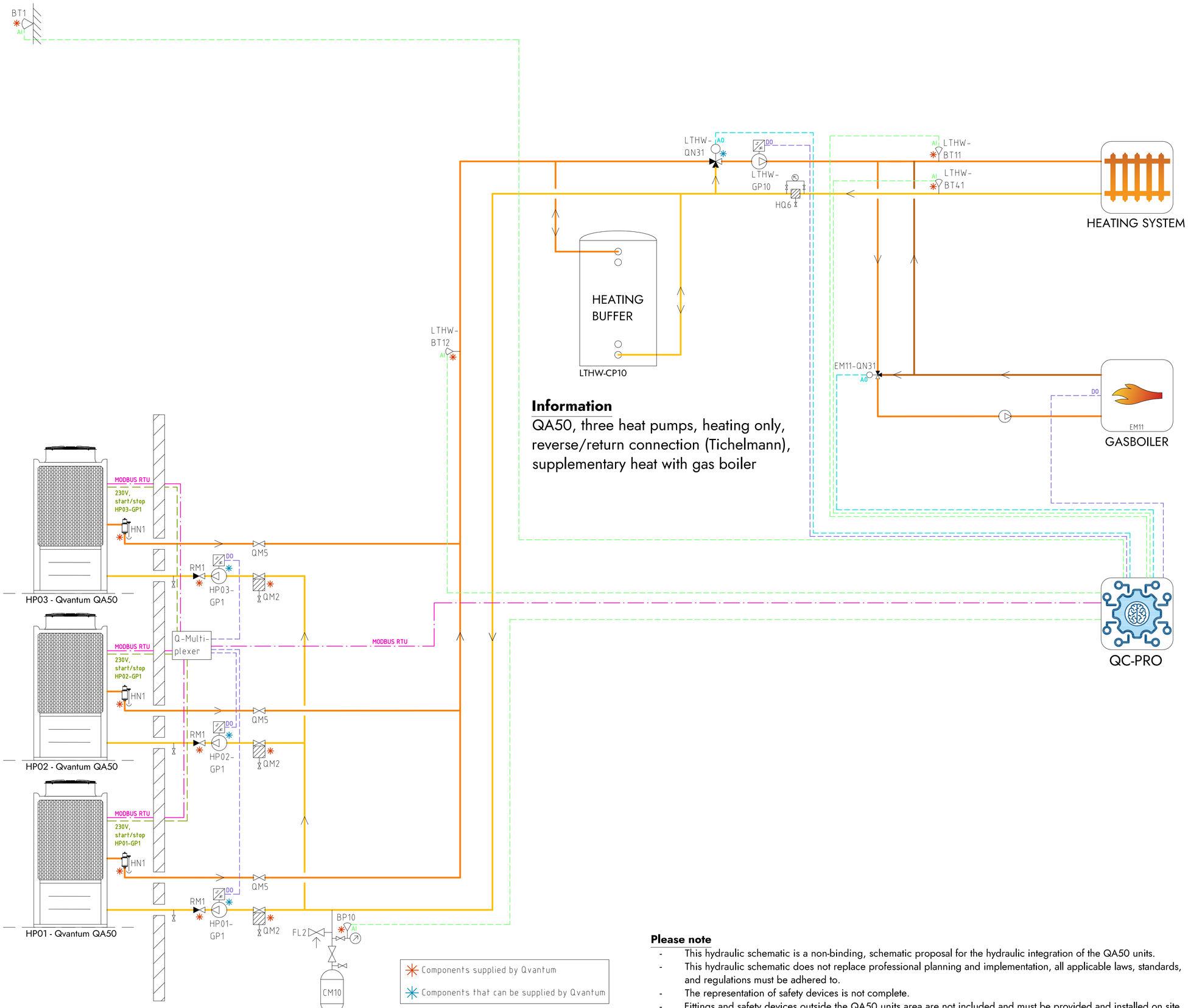
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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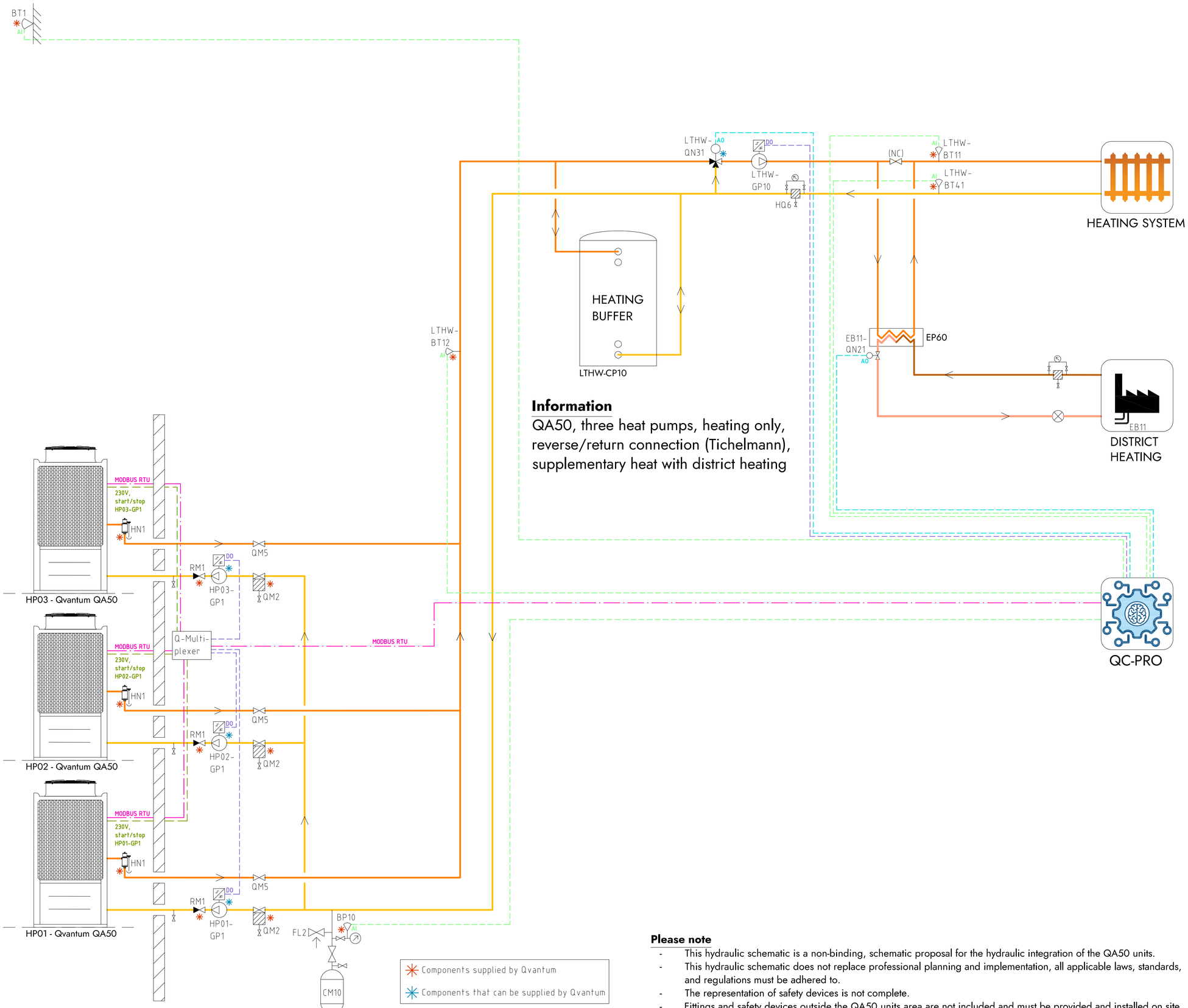
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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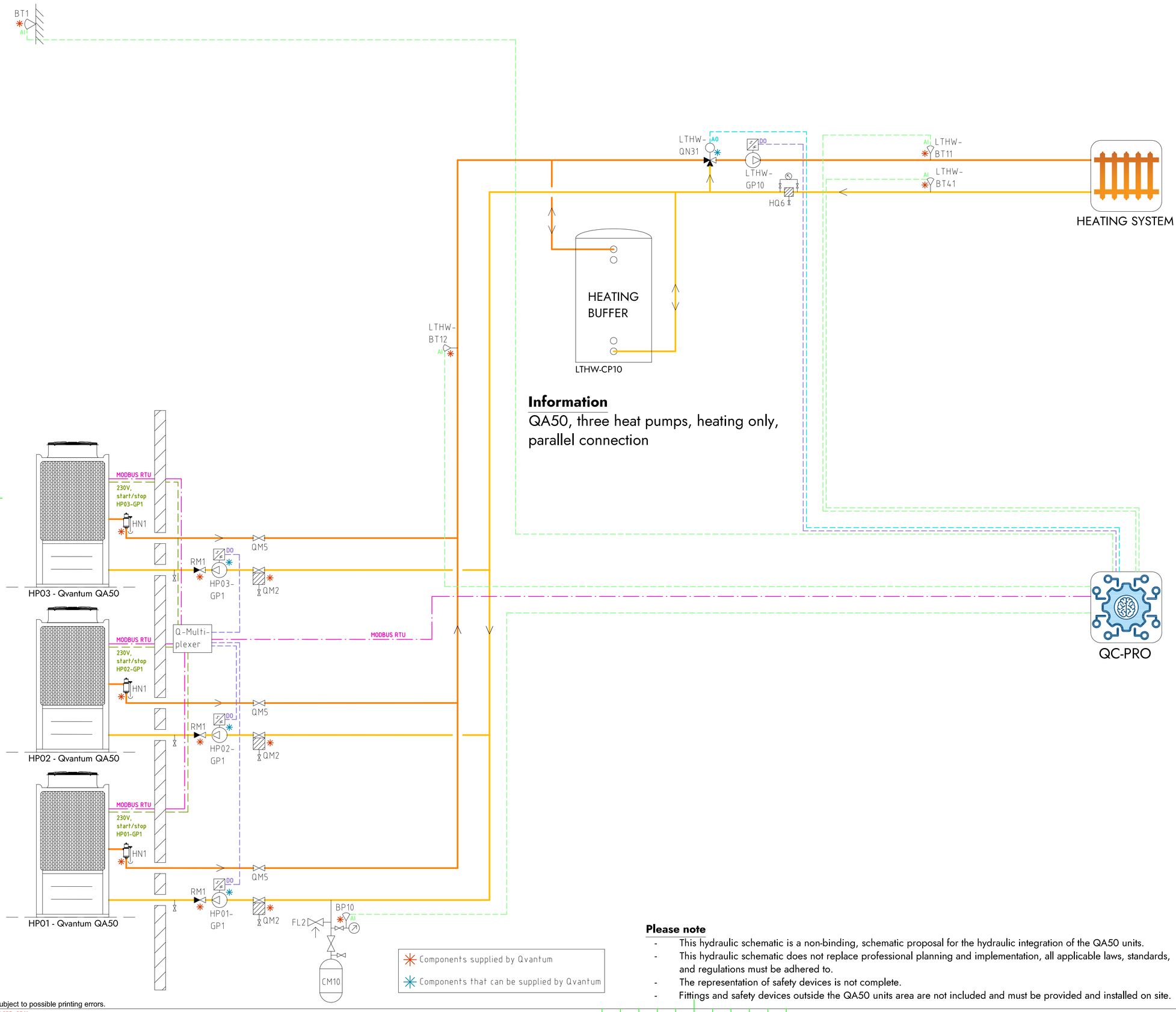
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, parallel connection

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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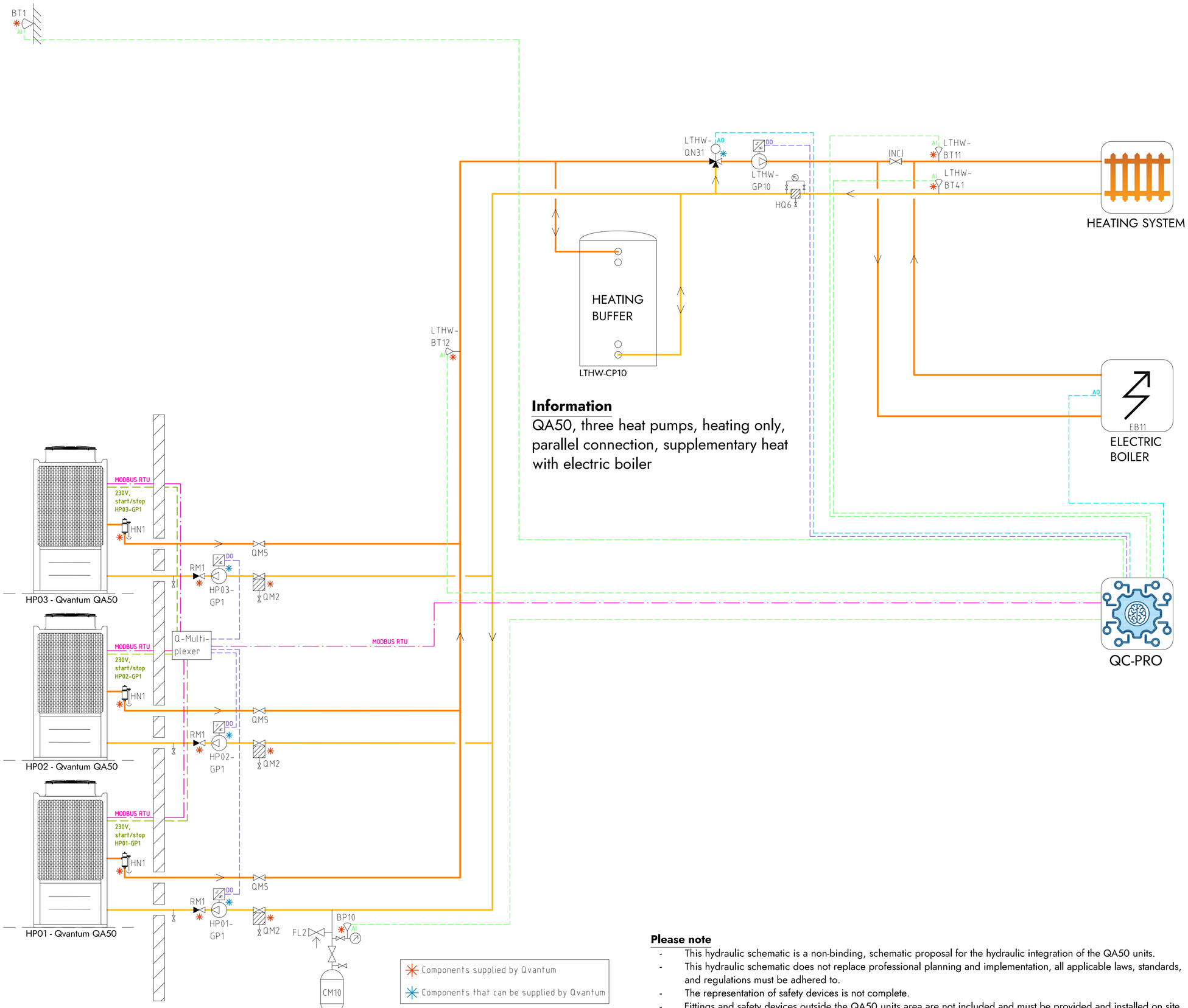
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, parallel connection, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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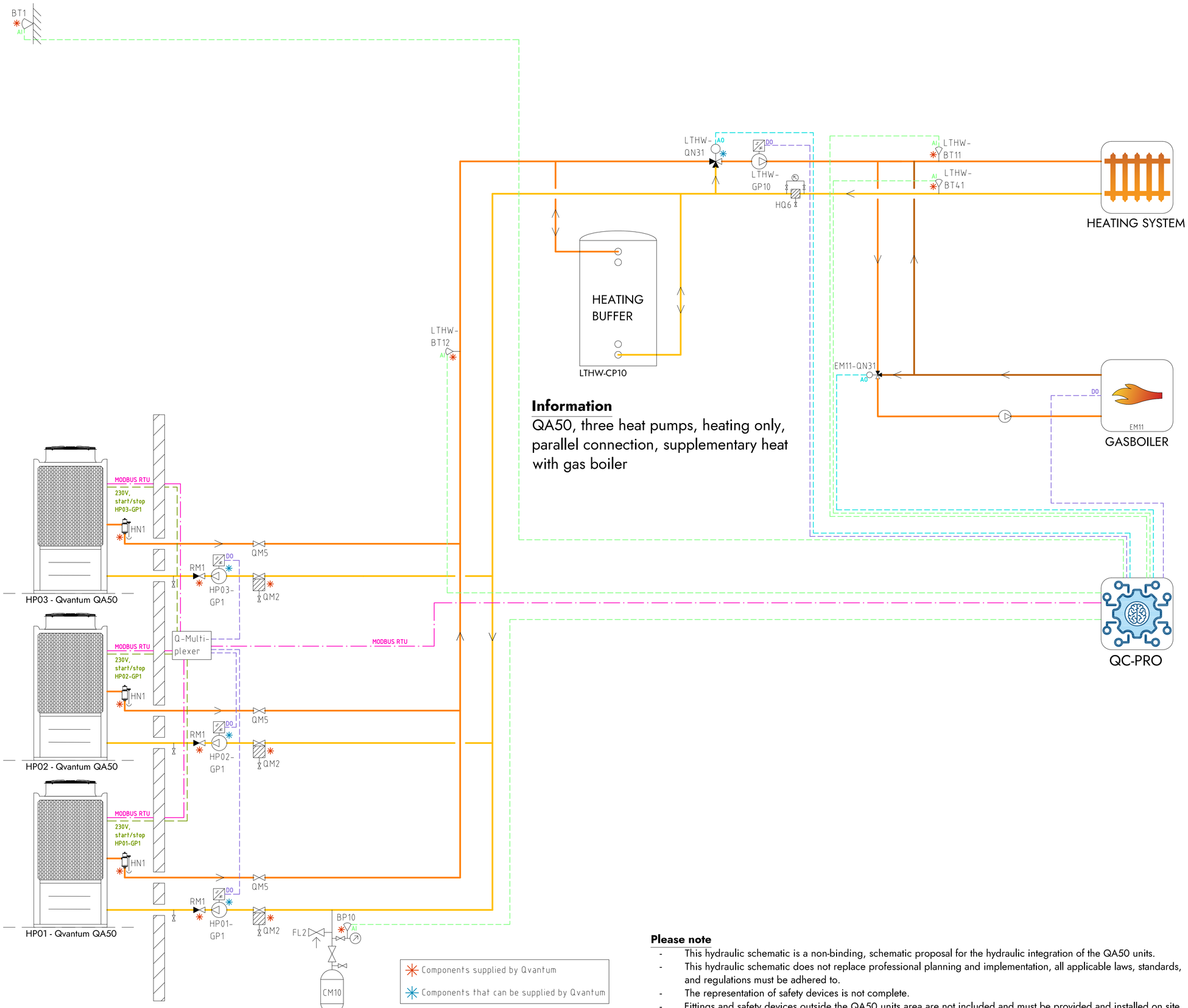
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, parallel connection, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

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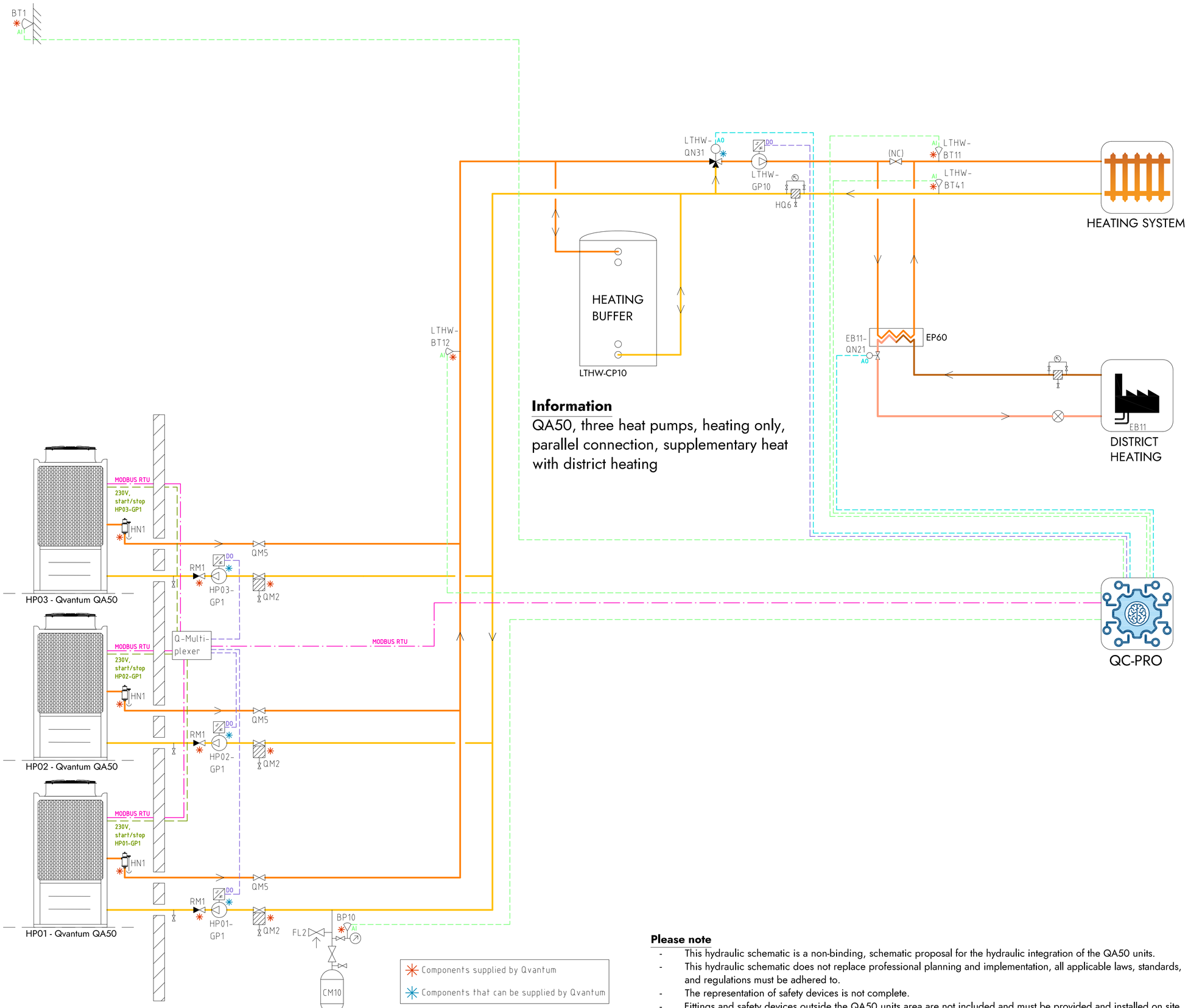
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating only, parallel connection, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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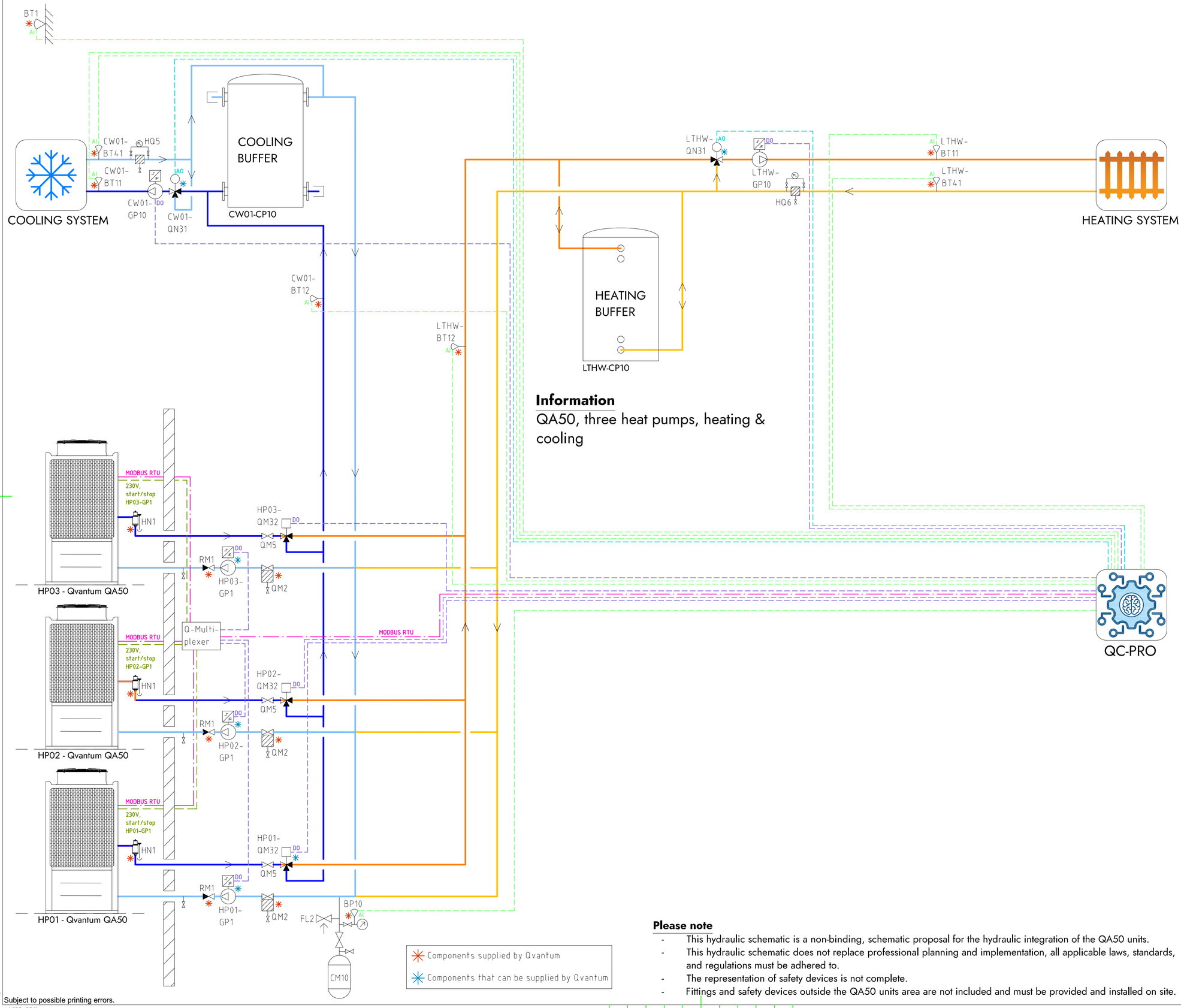
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & cooling

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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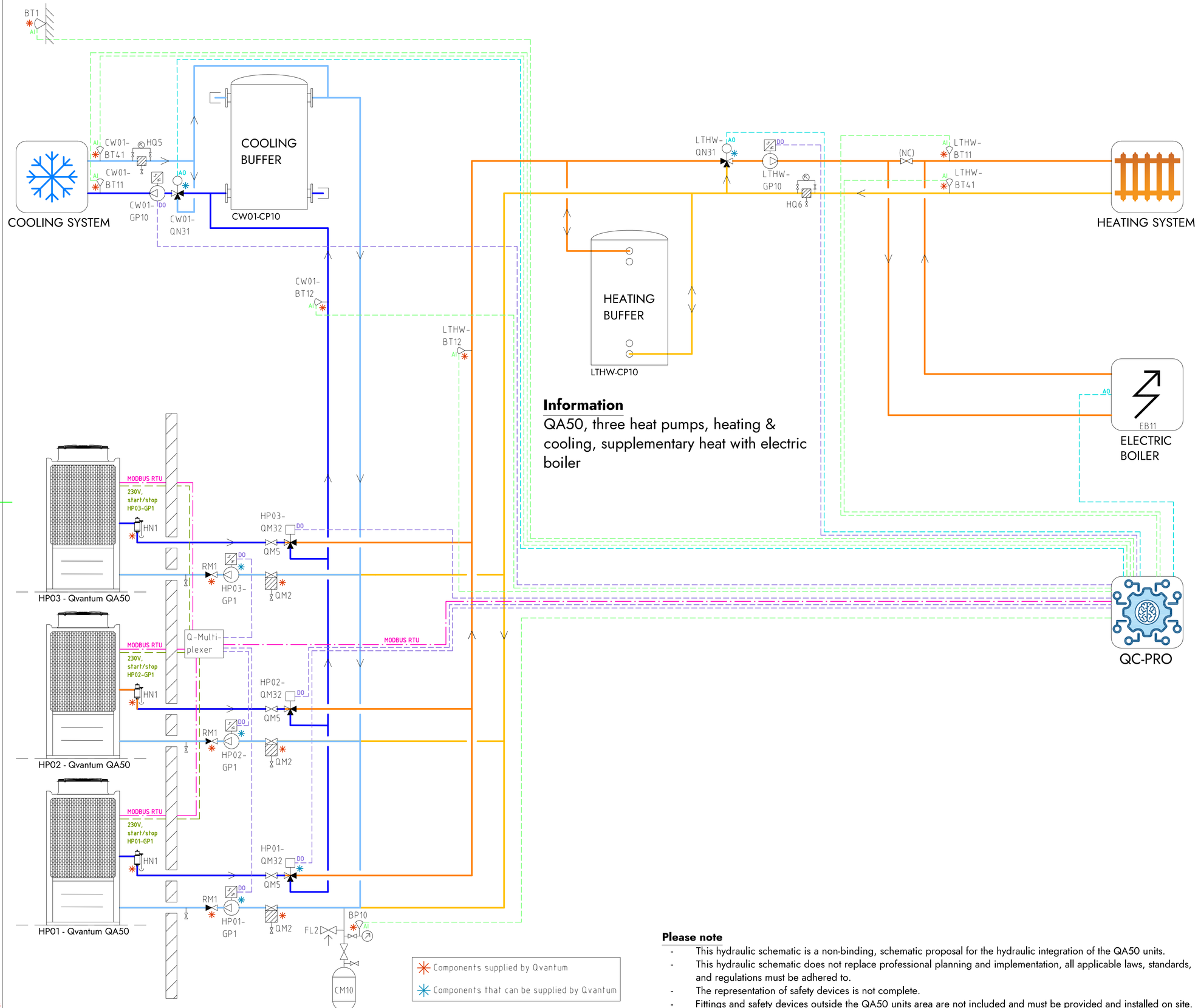
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & cooling, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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- The representation of safety devices is not complete.
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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

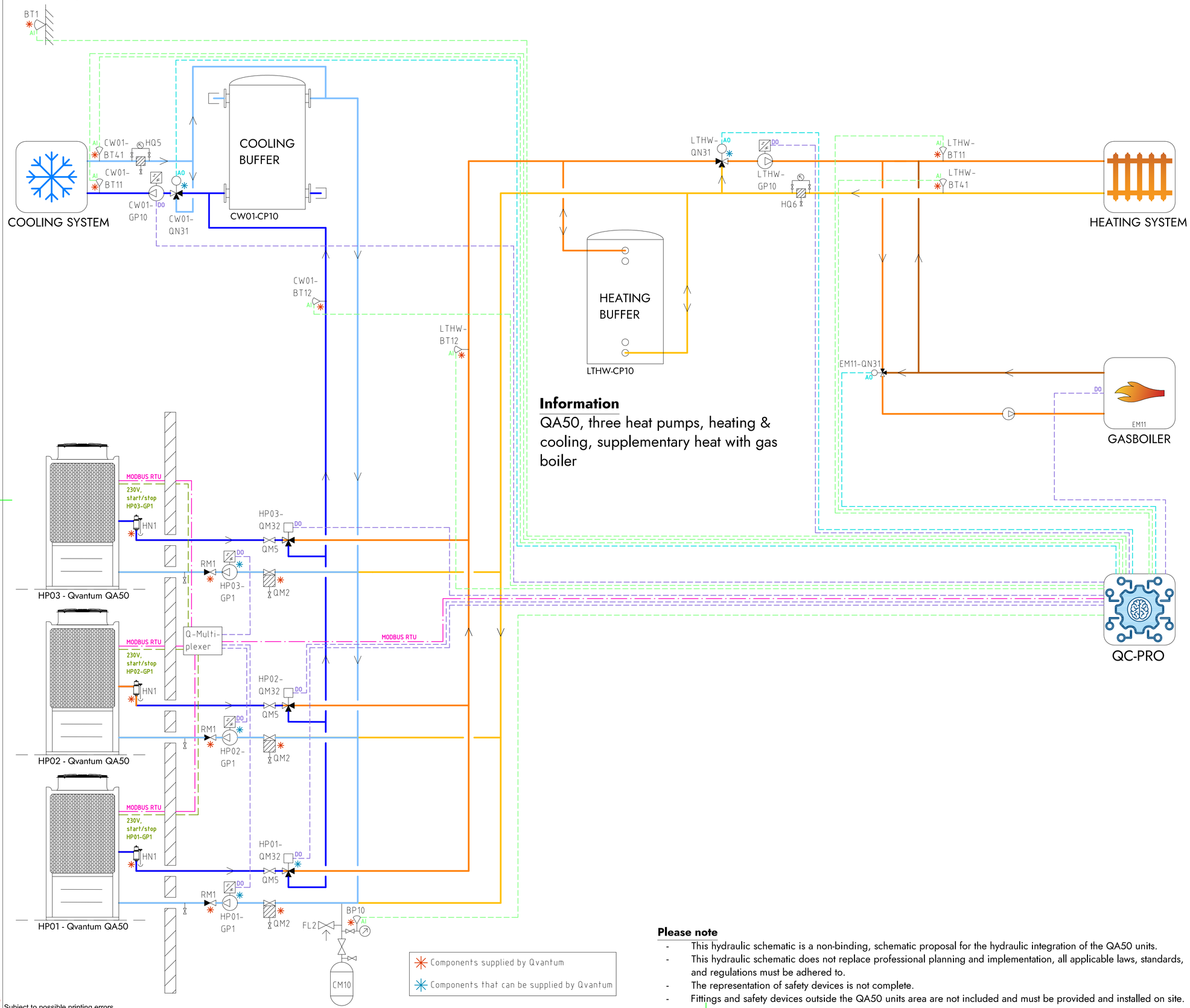
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & cooling, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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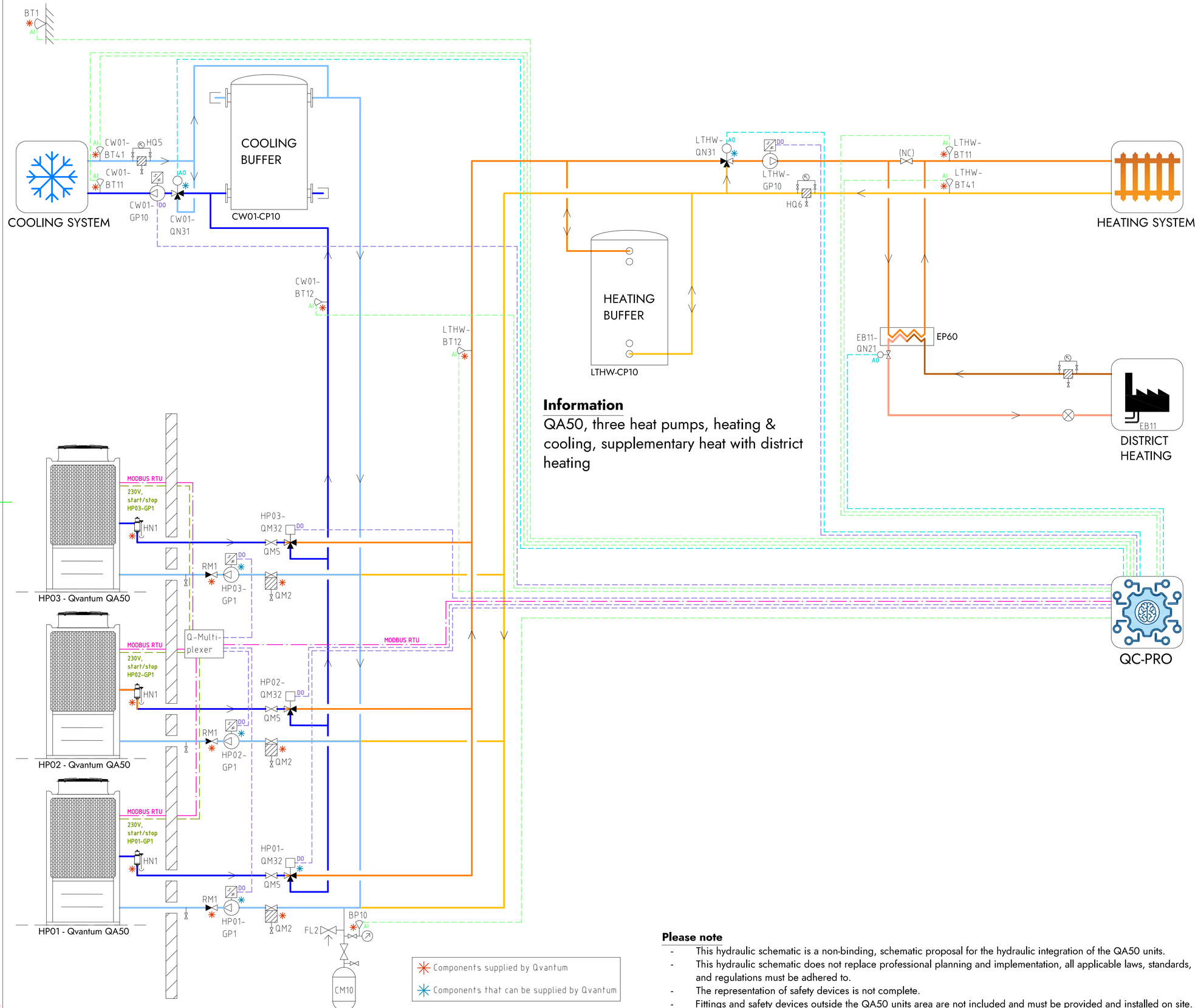
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & cooling, supplementary heat with district heating

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES

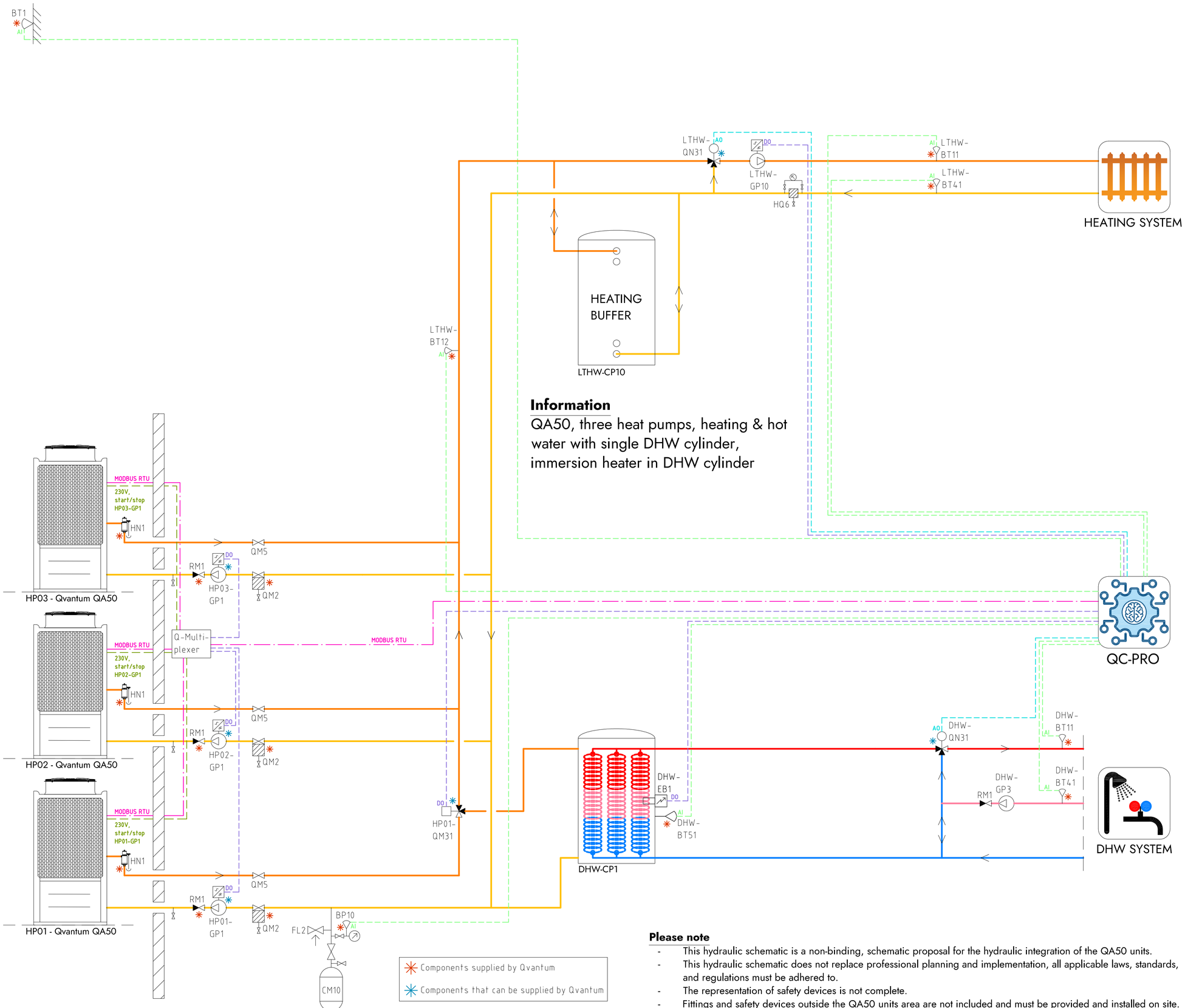
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

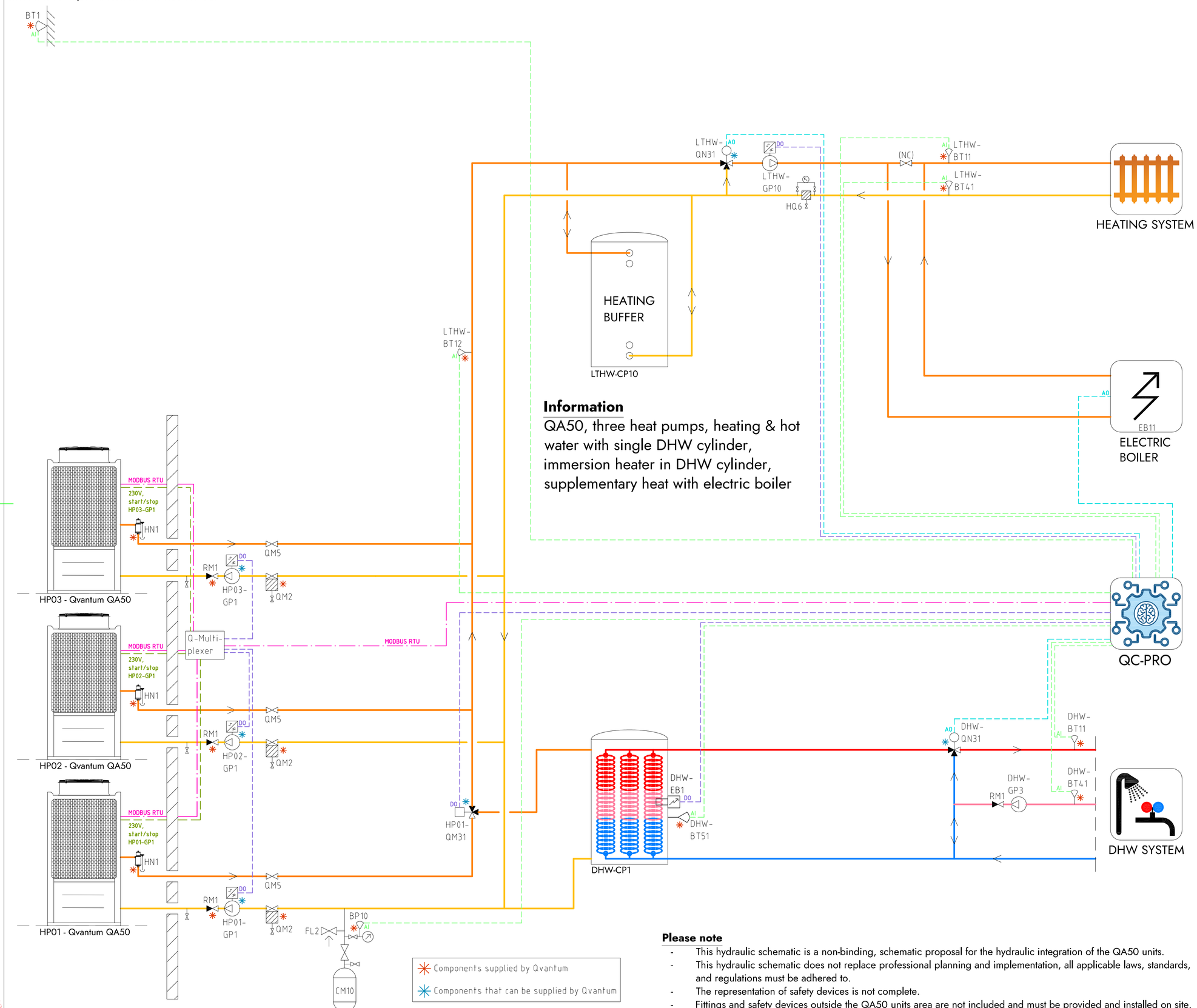
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric Boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES

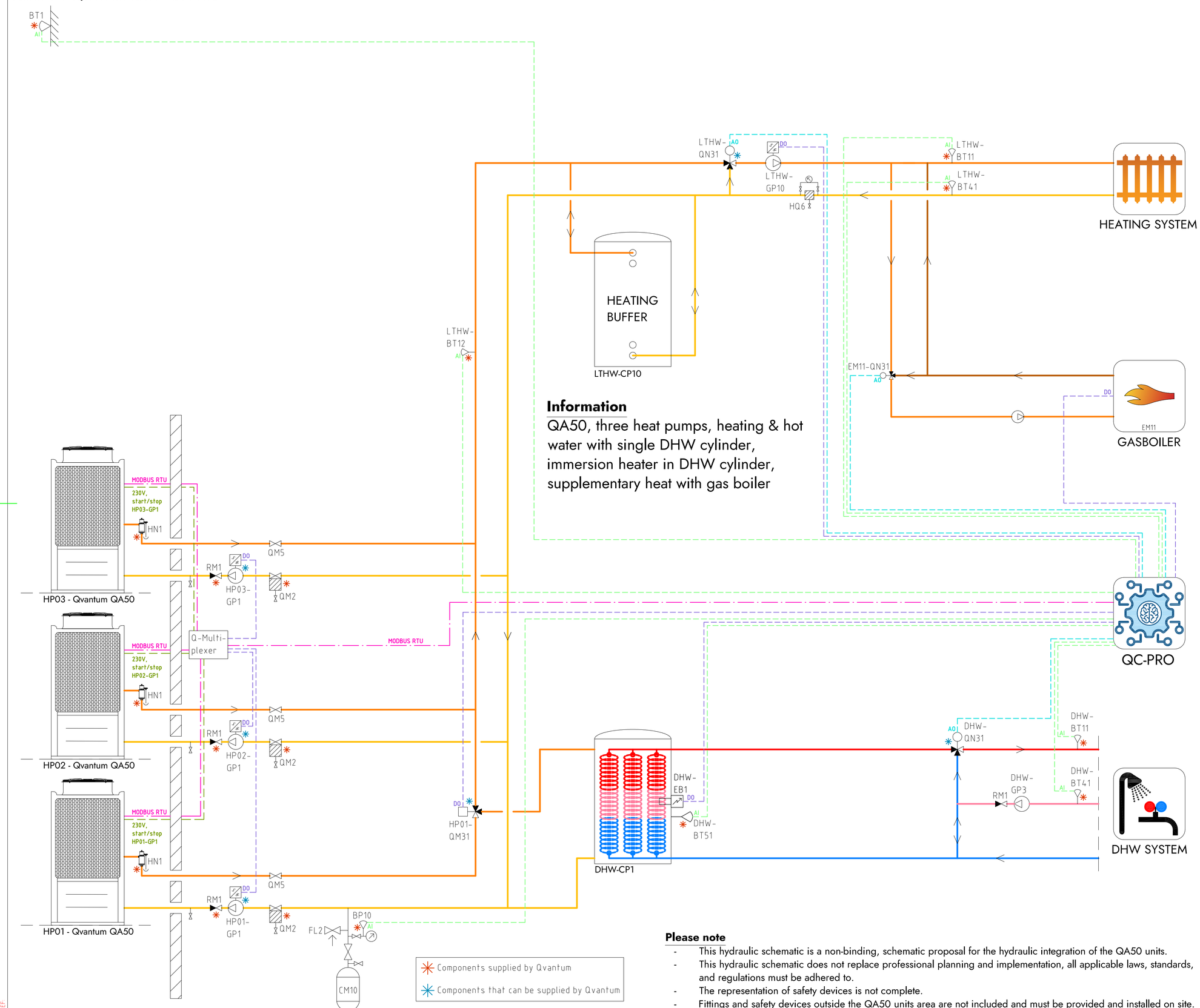
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with single DHW cylinder, immersion heater in DHW cylinder, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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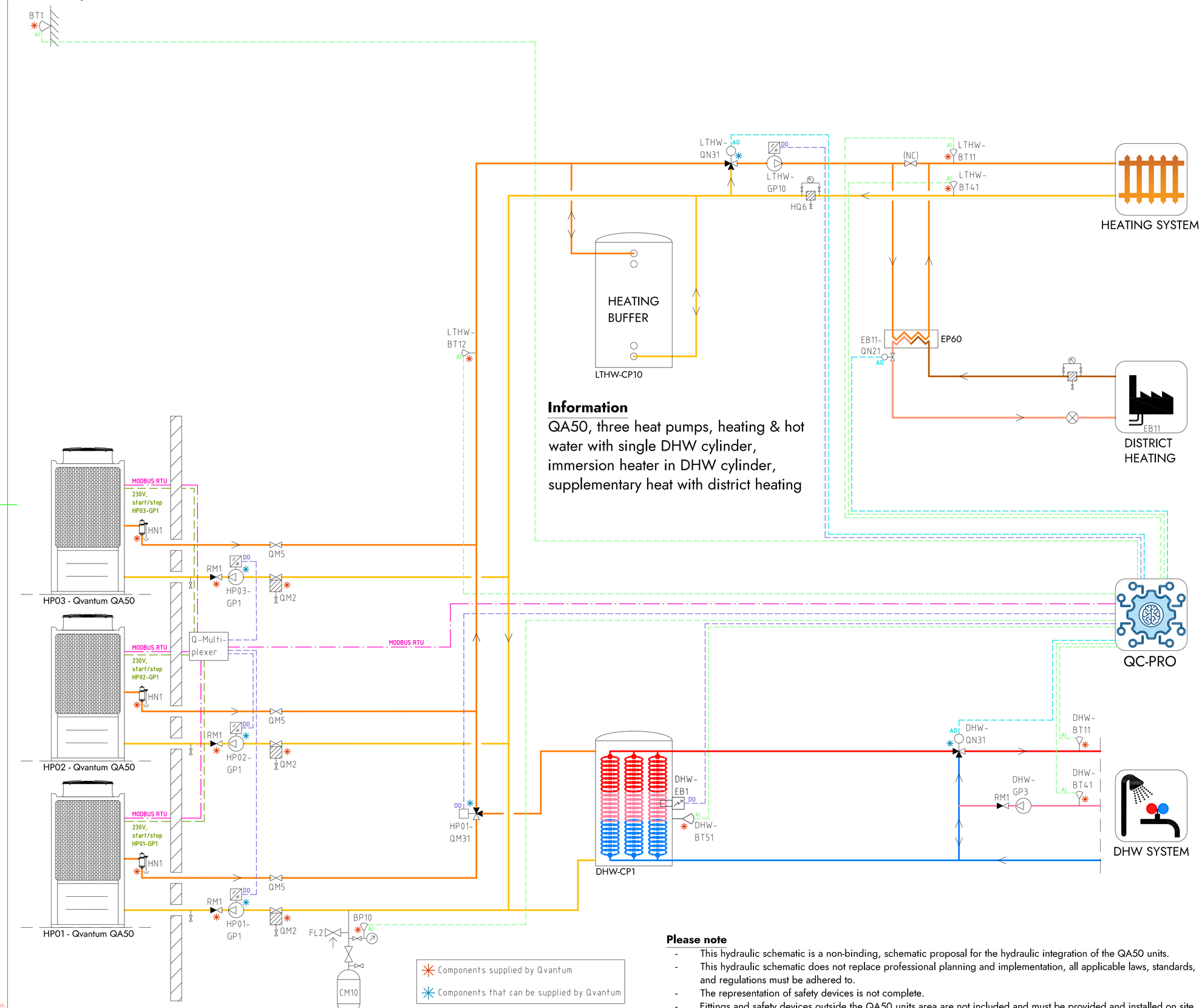
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with single DHW cylinder, immersion heater in DHW cylinder, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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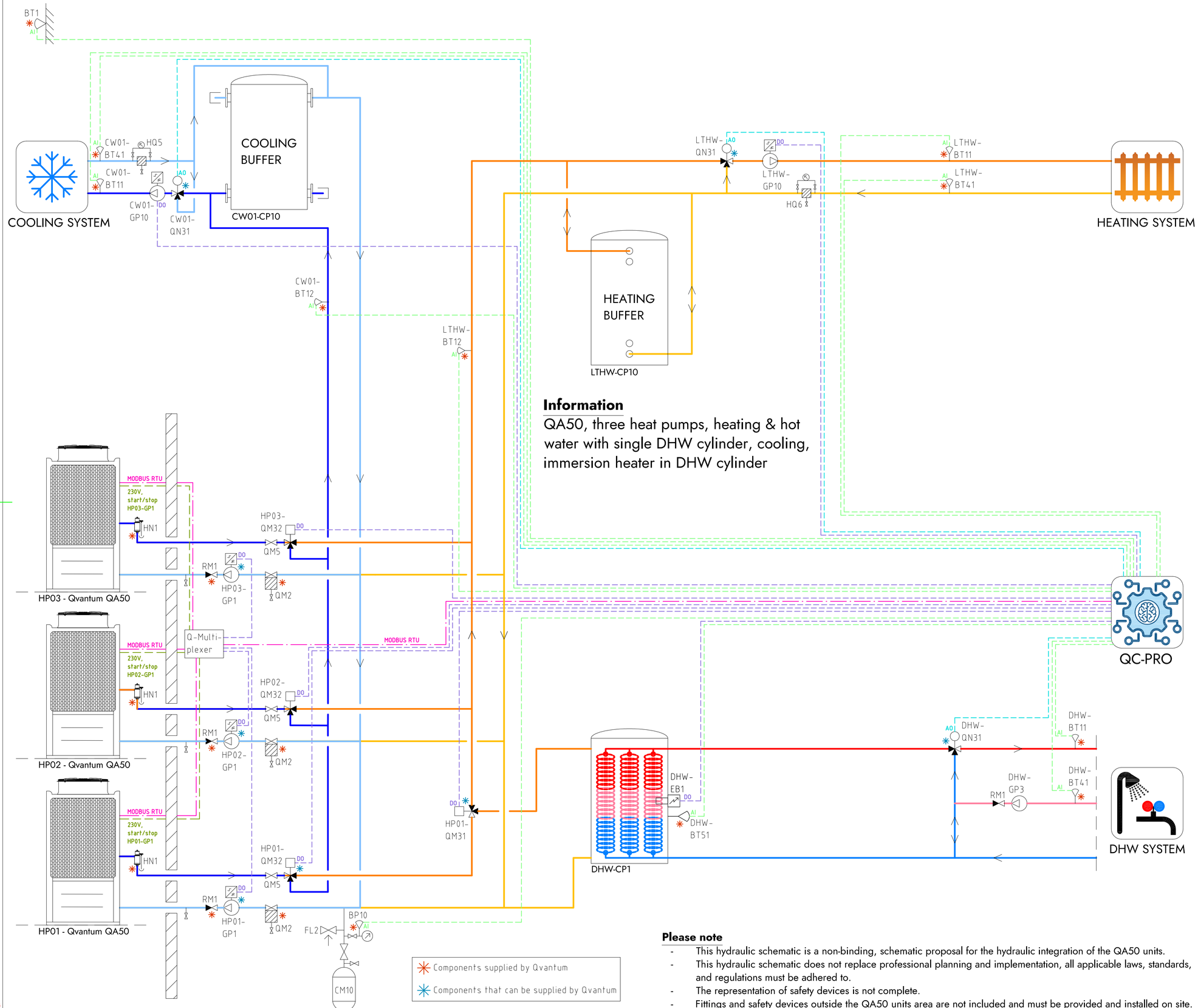
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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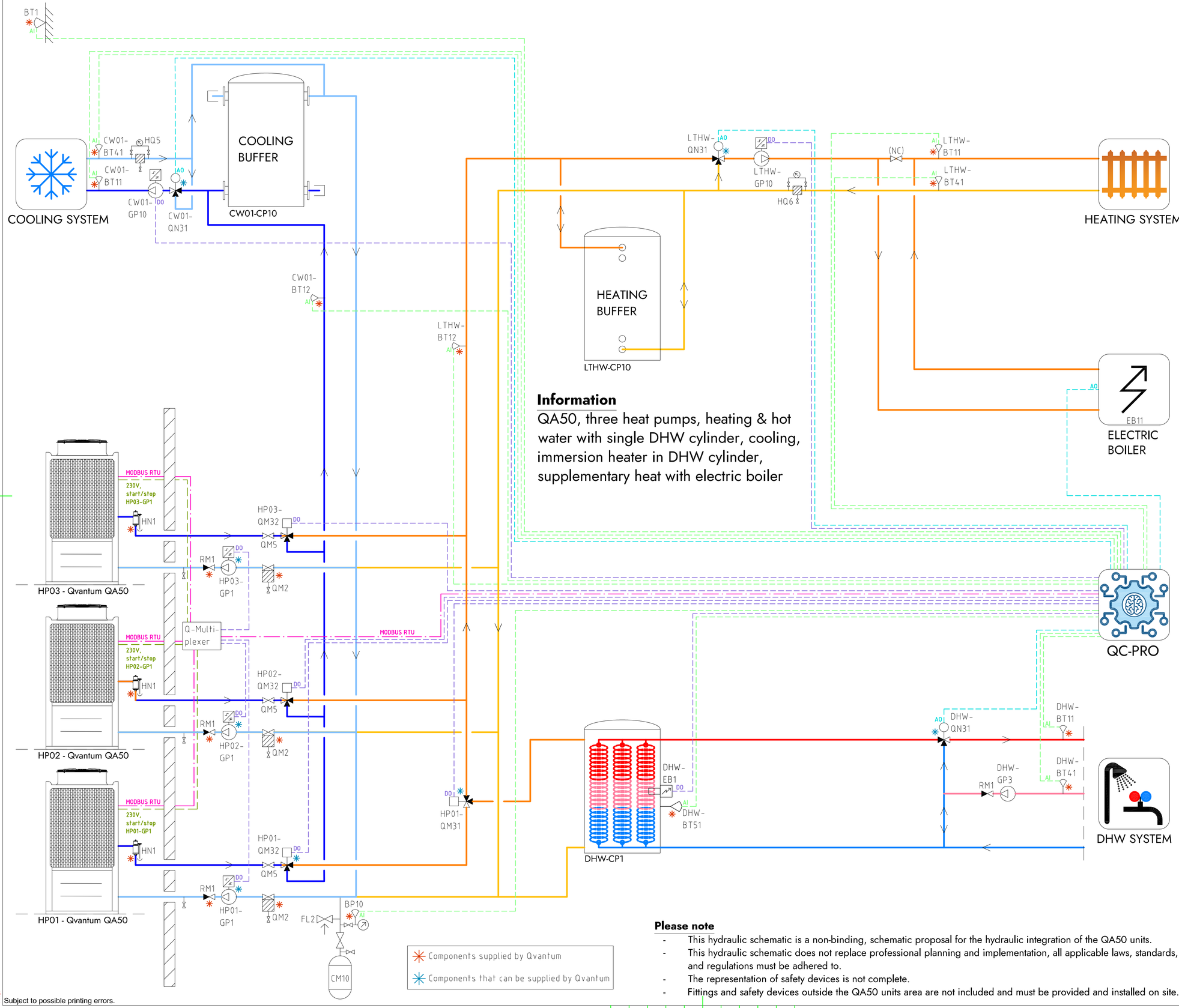
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with electric boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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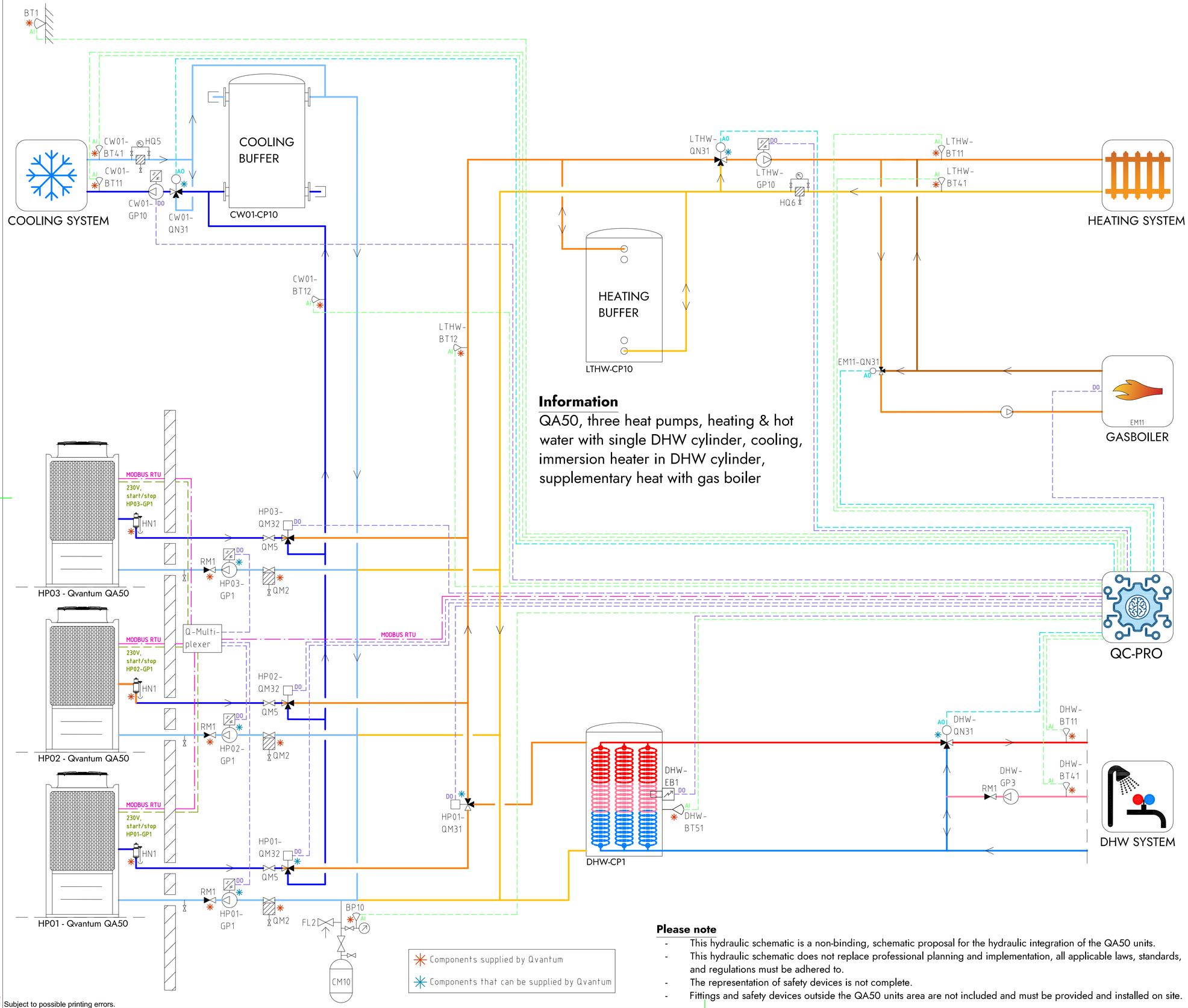
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with gas boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

### Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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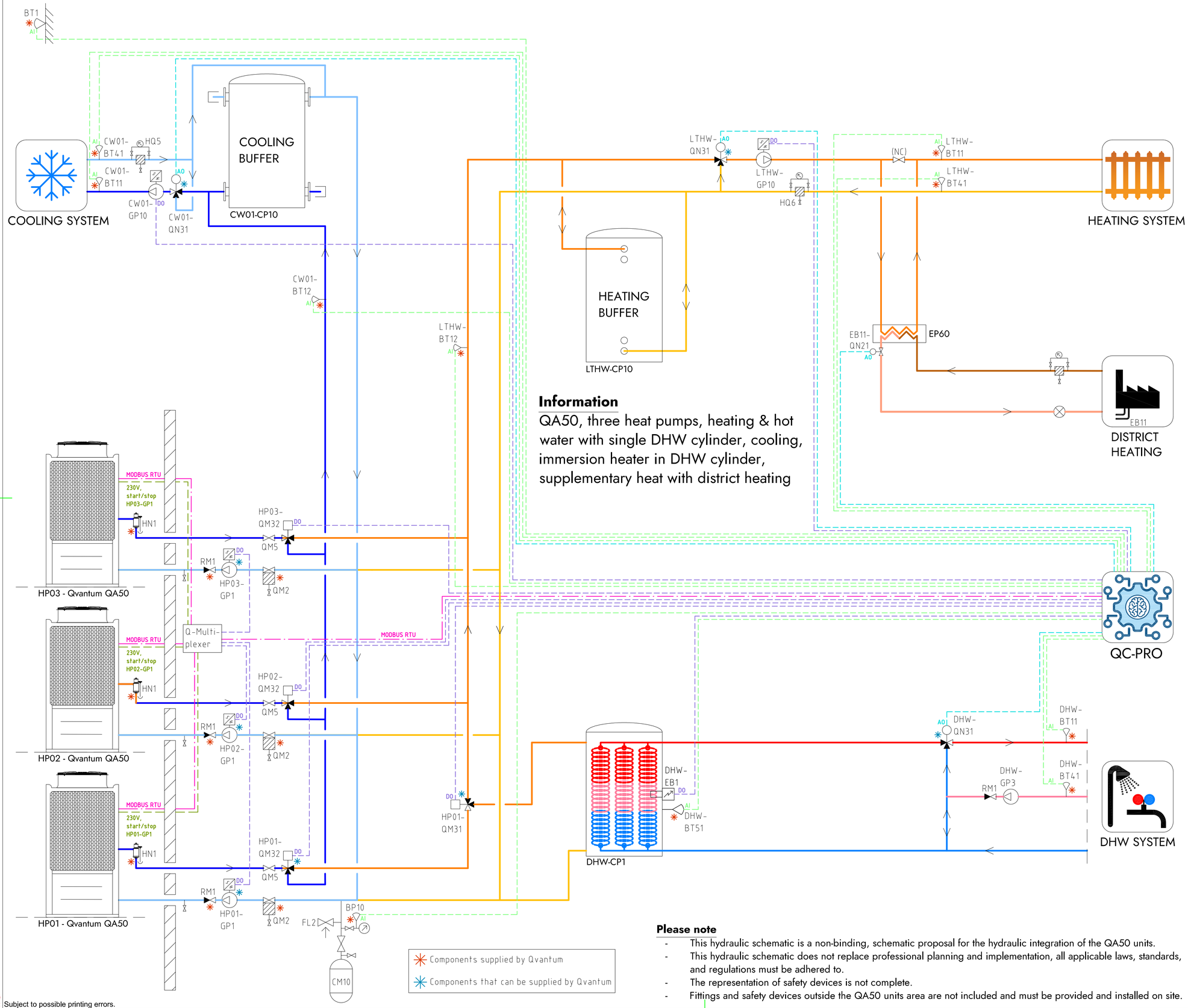
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with district heating

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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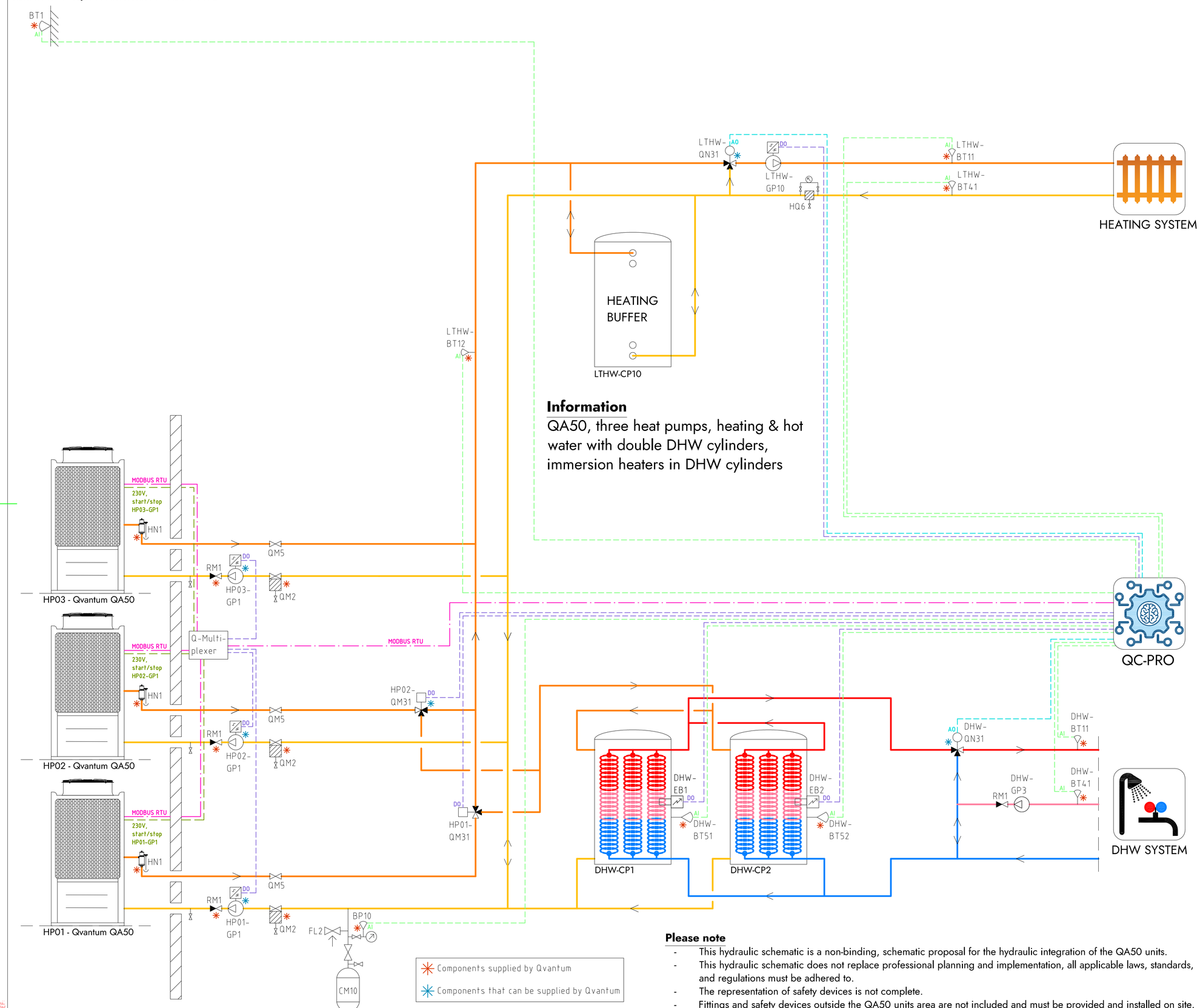
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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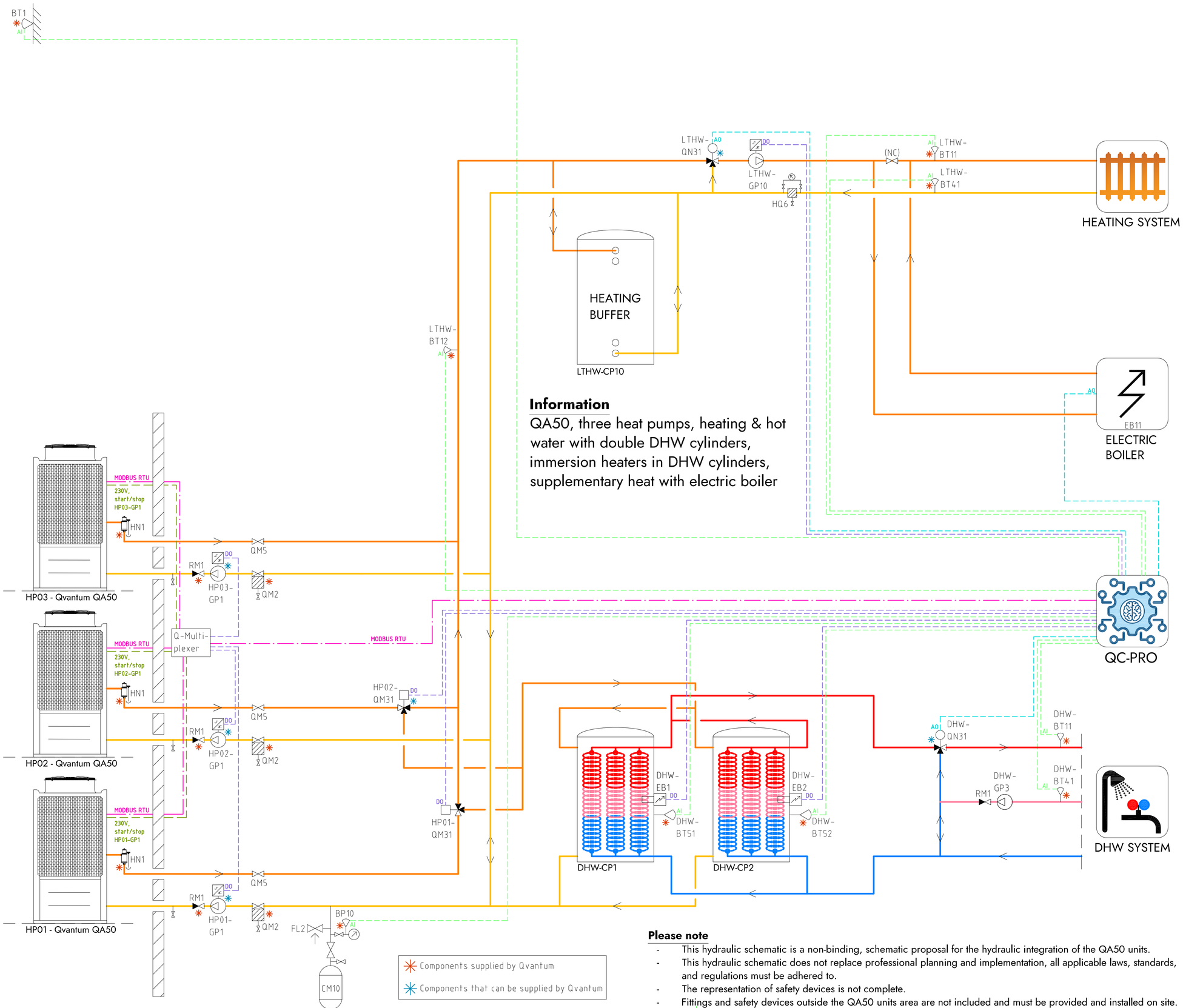
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

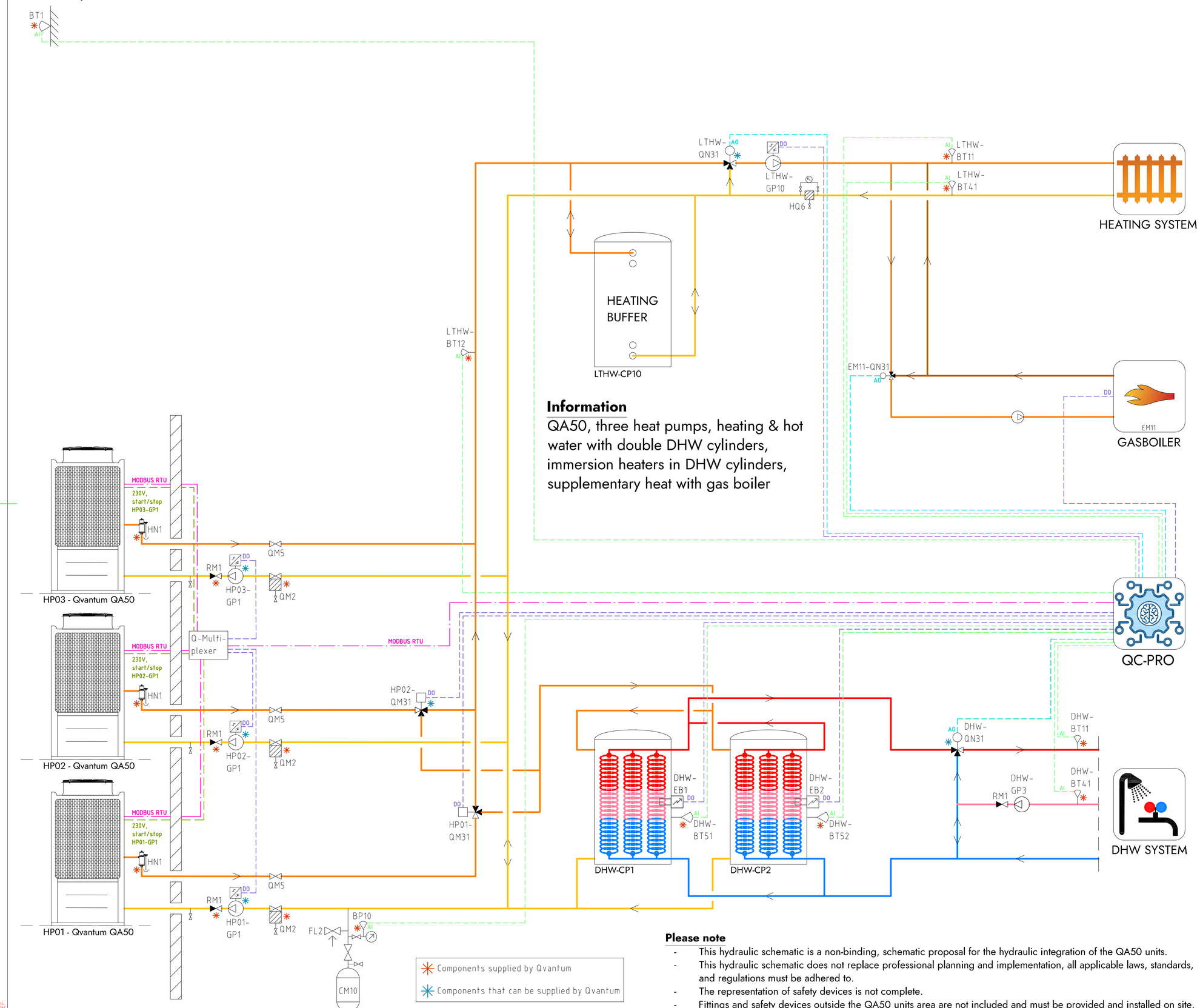
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, immersion heaters in DHW cylinders, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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Subject to possible printing errors.

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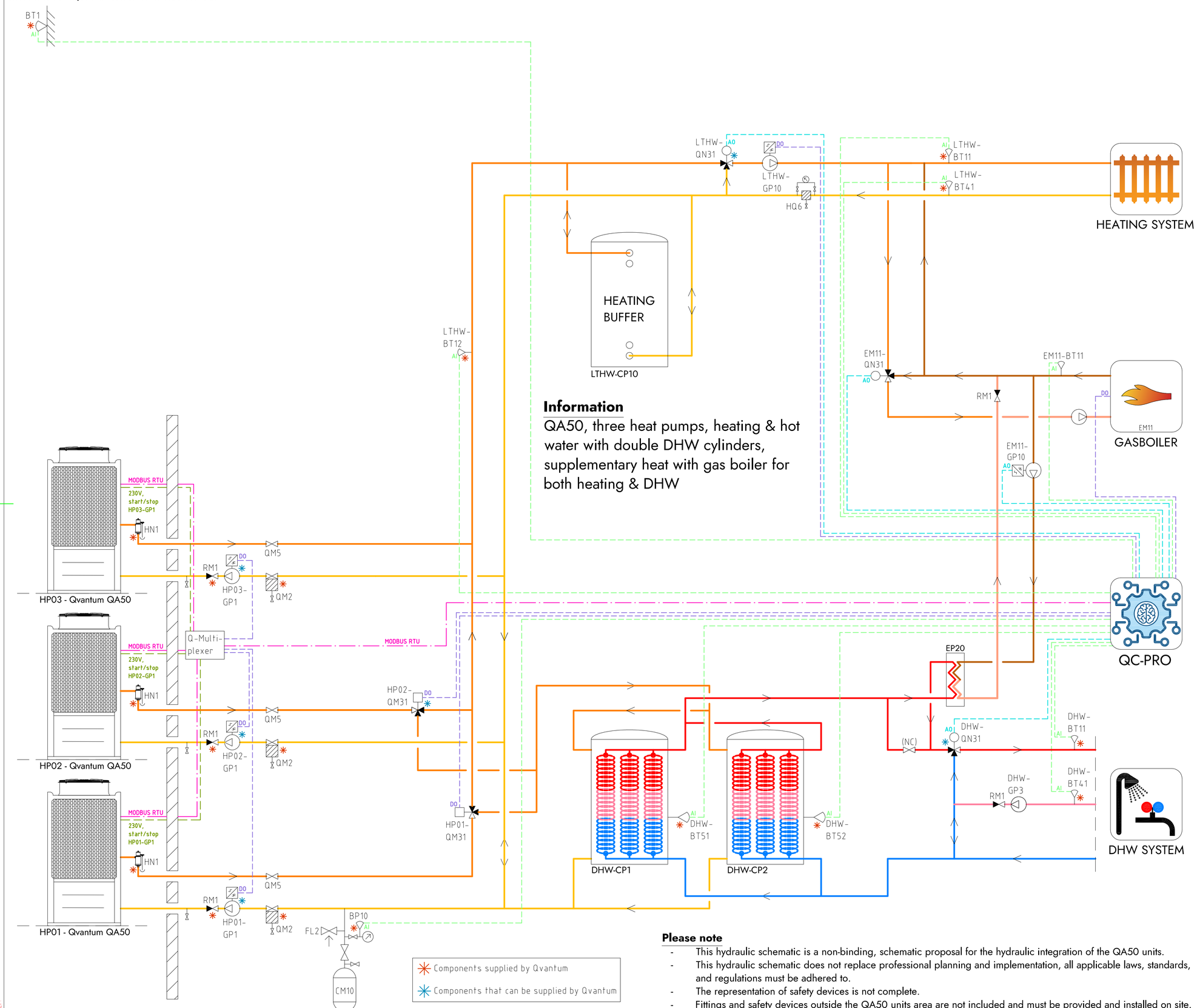
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, supplementary heat with gas boiler for both heating & DHW

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-BT11 | Flow temperature, Gas boiler |
| EM11-GP10 | Circulation pump, Gas Boiler (DHW) |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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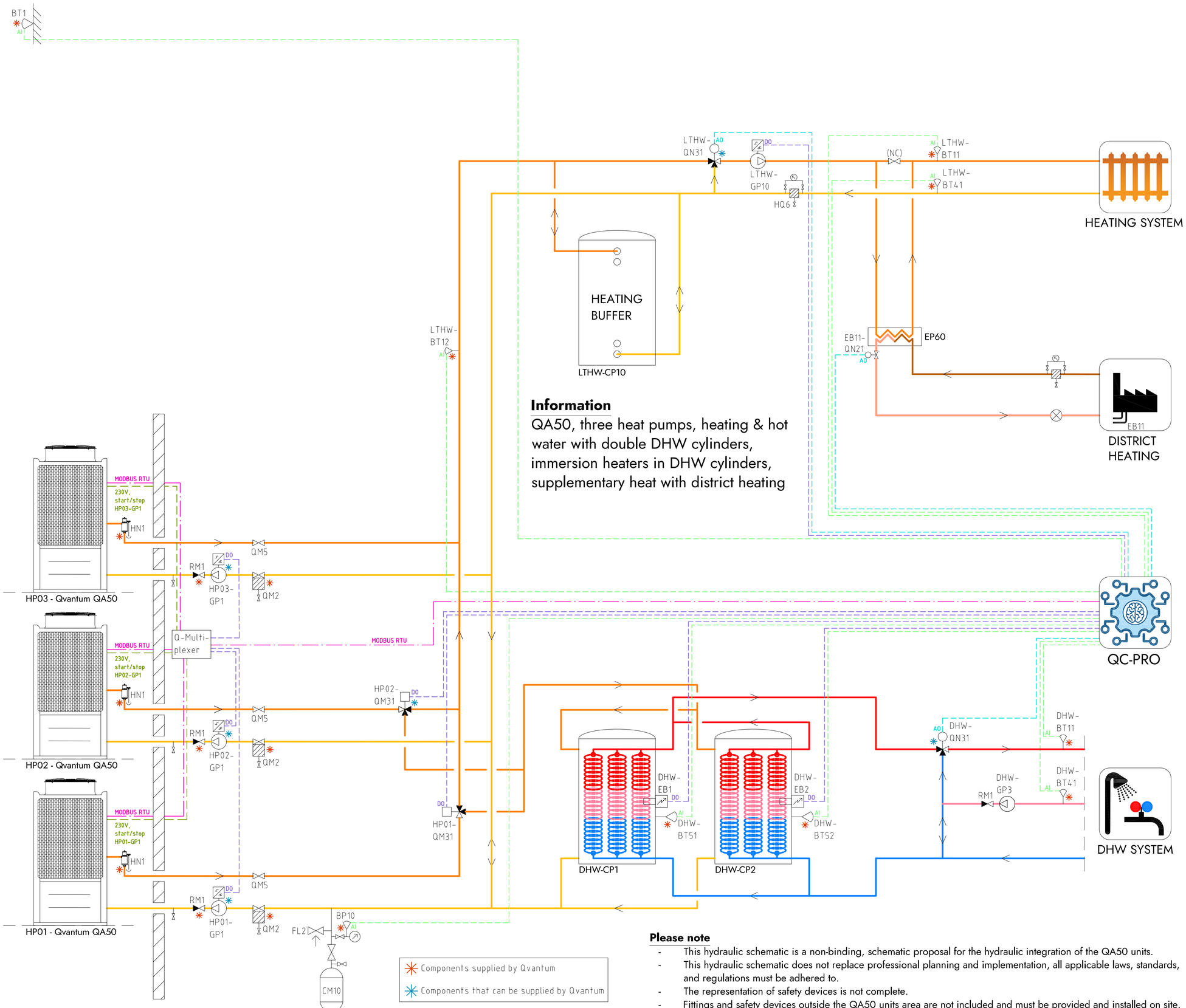
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, immersion heaters in DHW cylinders, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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- The representation of safety devices is not complete.
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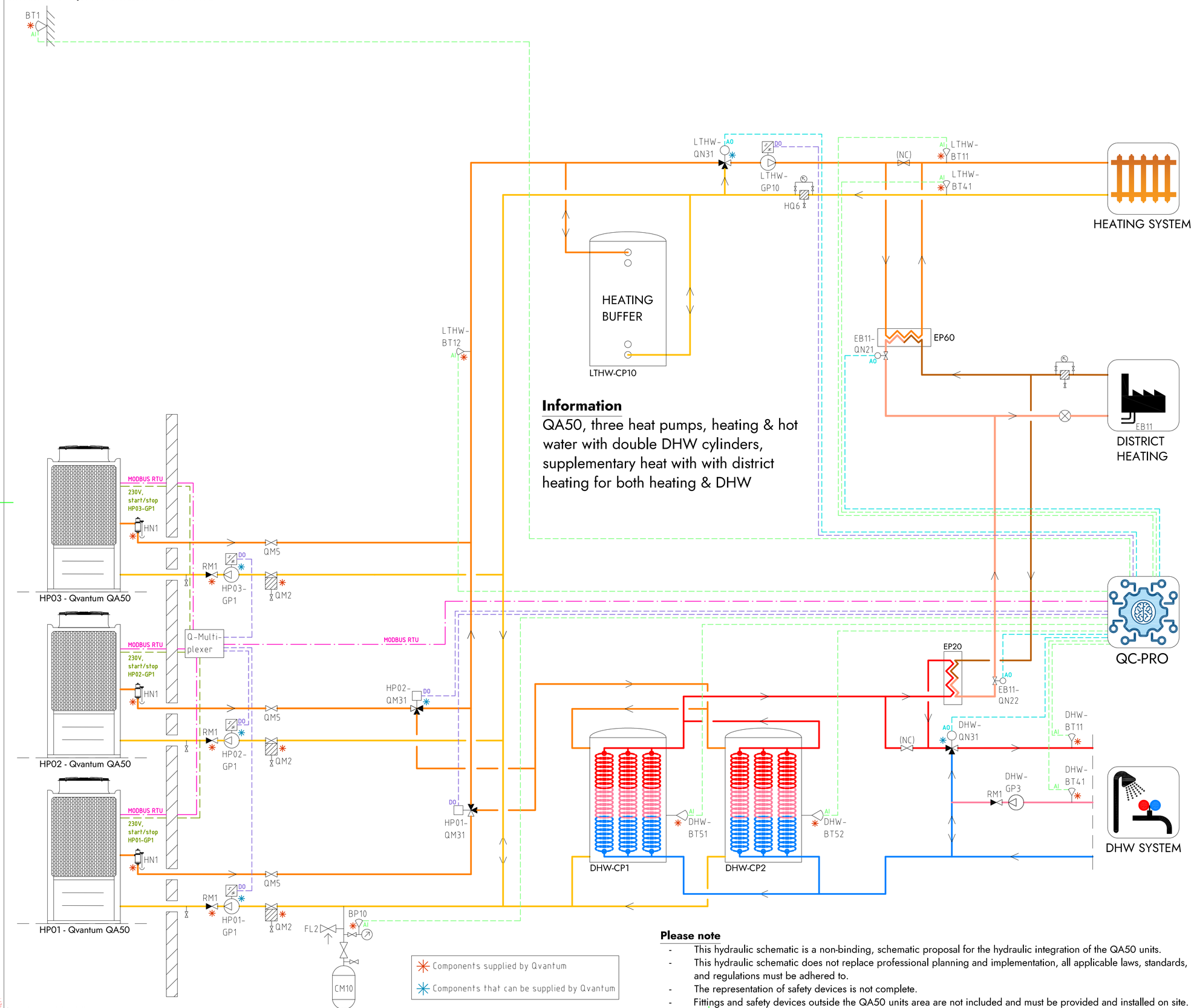
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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XREF:
LAGER: SB11

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, supplementary heat with with district heating for both heating & DHW

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

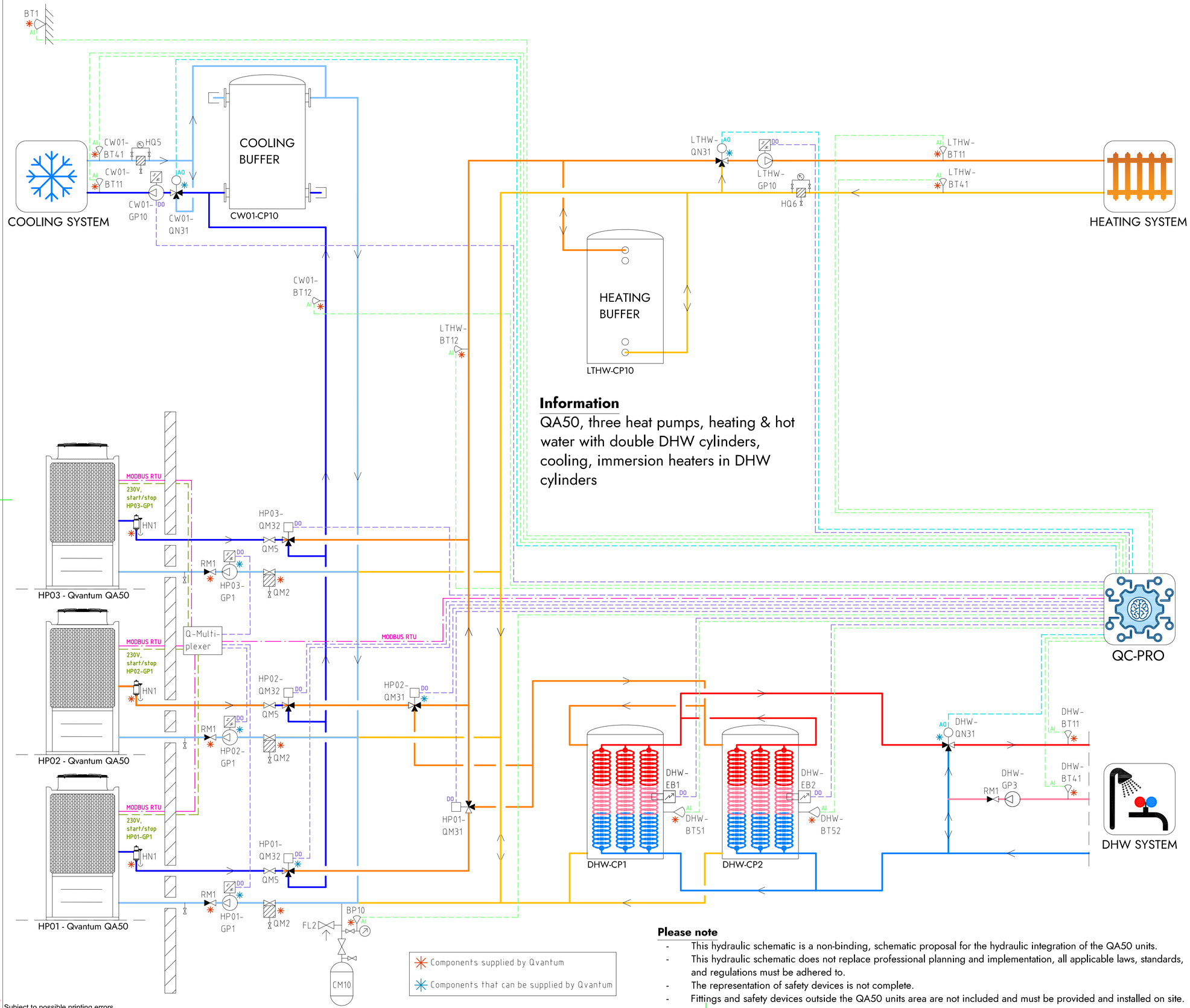
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

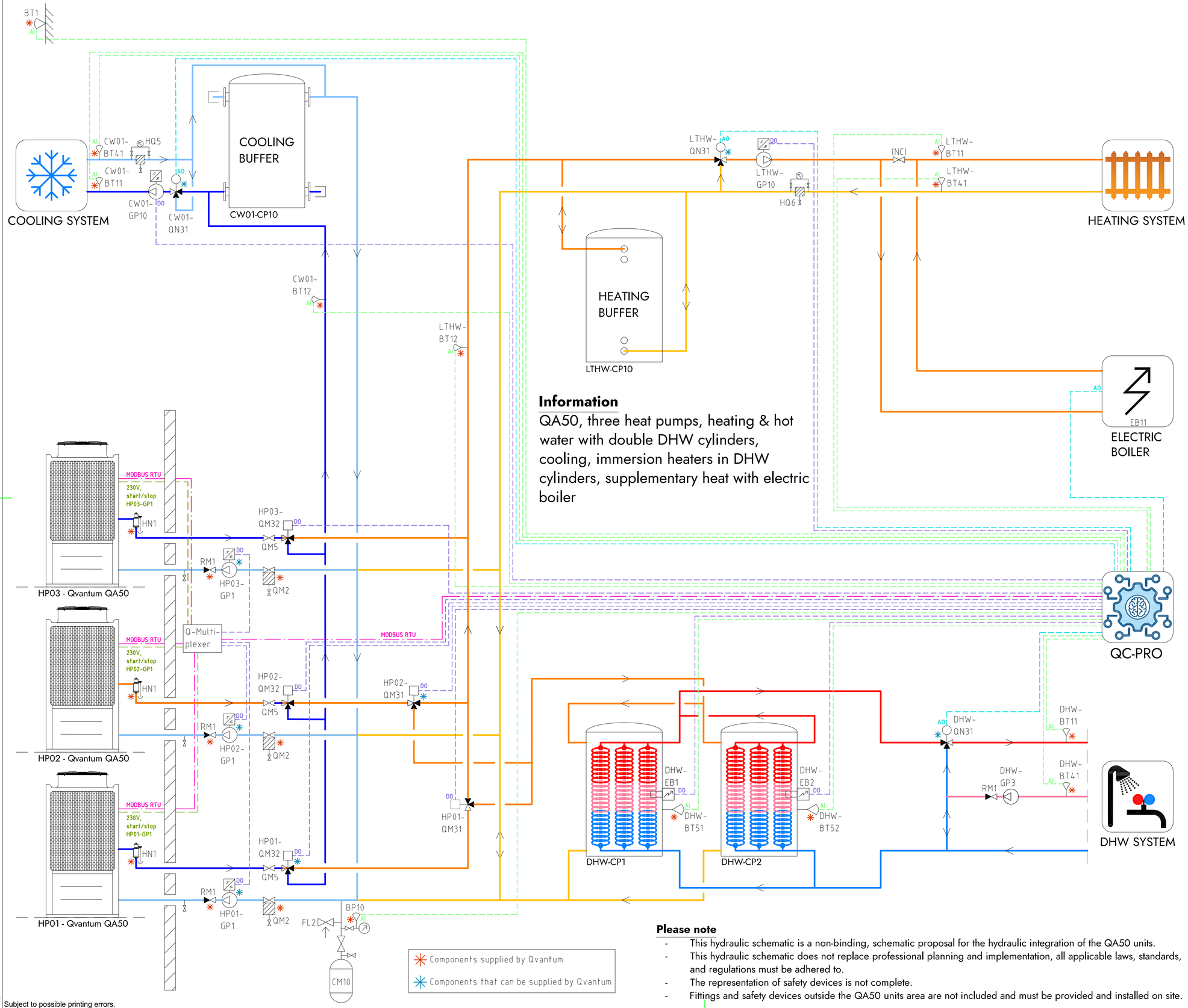
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with electric boiler

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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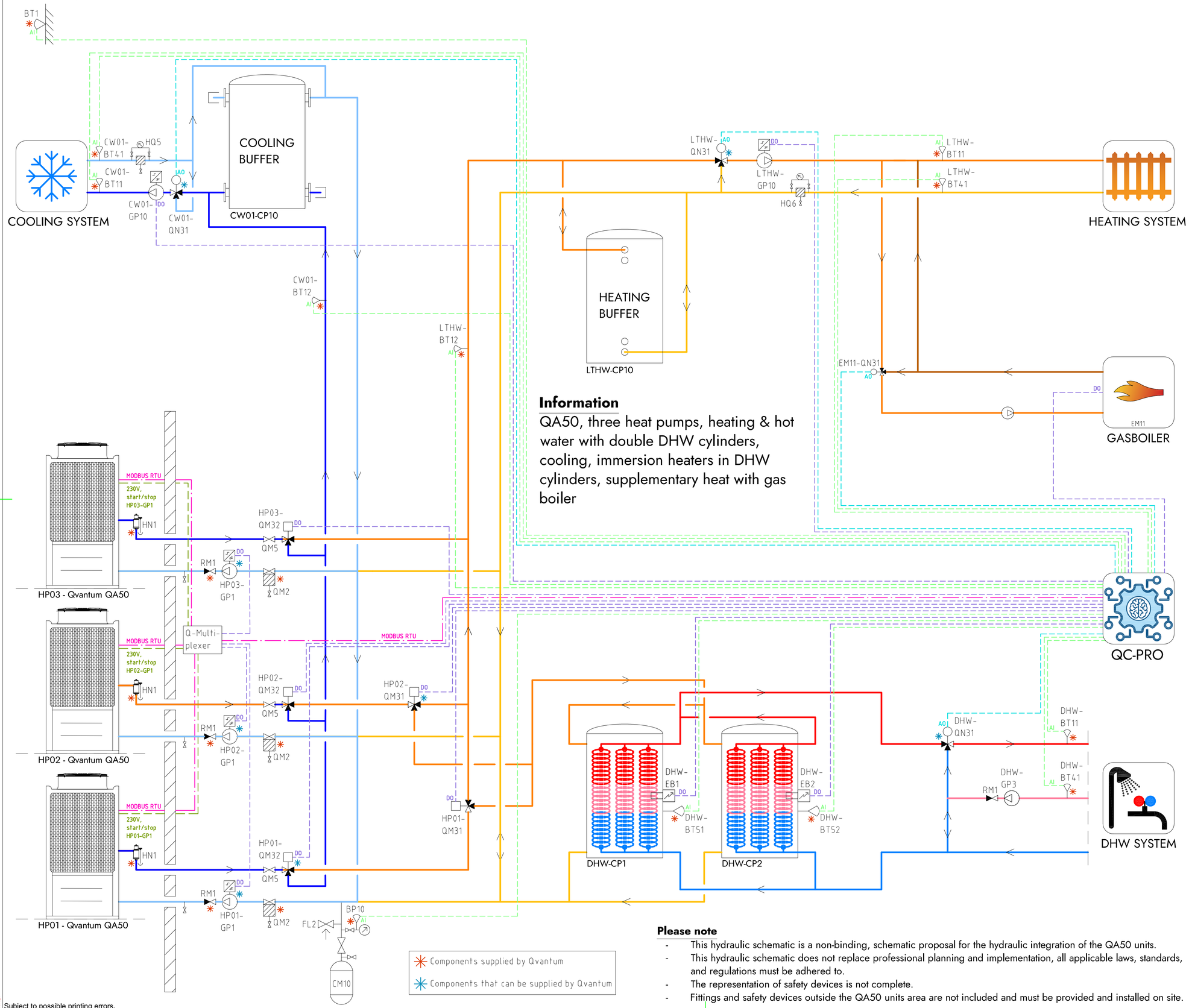
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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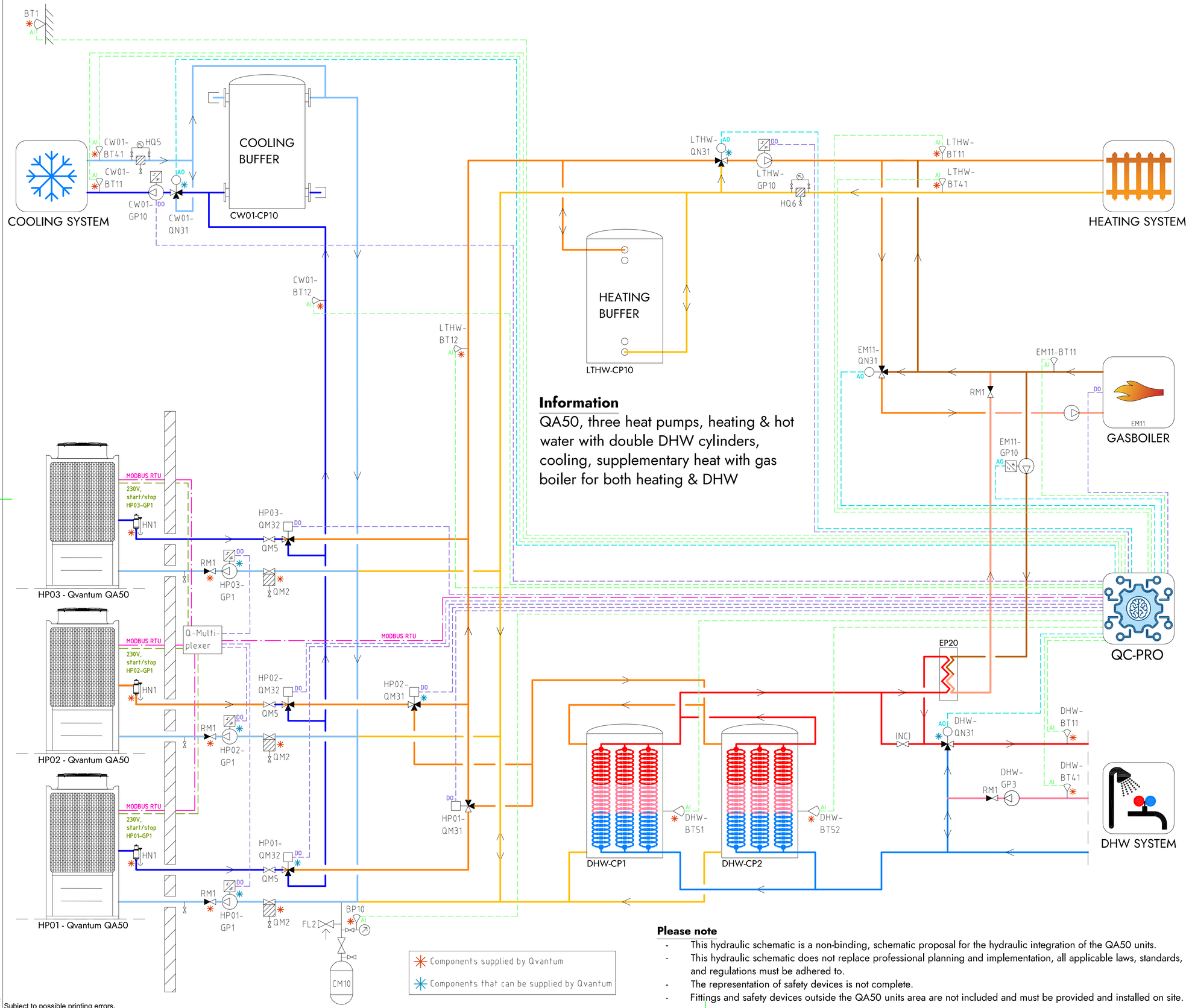
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, cooling, supplementary heat with gas boiler for both heating & DHW

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-BT11 | Flow temperature, Gas boiler |
| EM11-GP10 | Circulation pump, Gas Boiler (DHW) |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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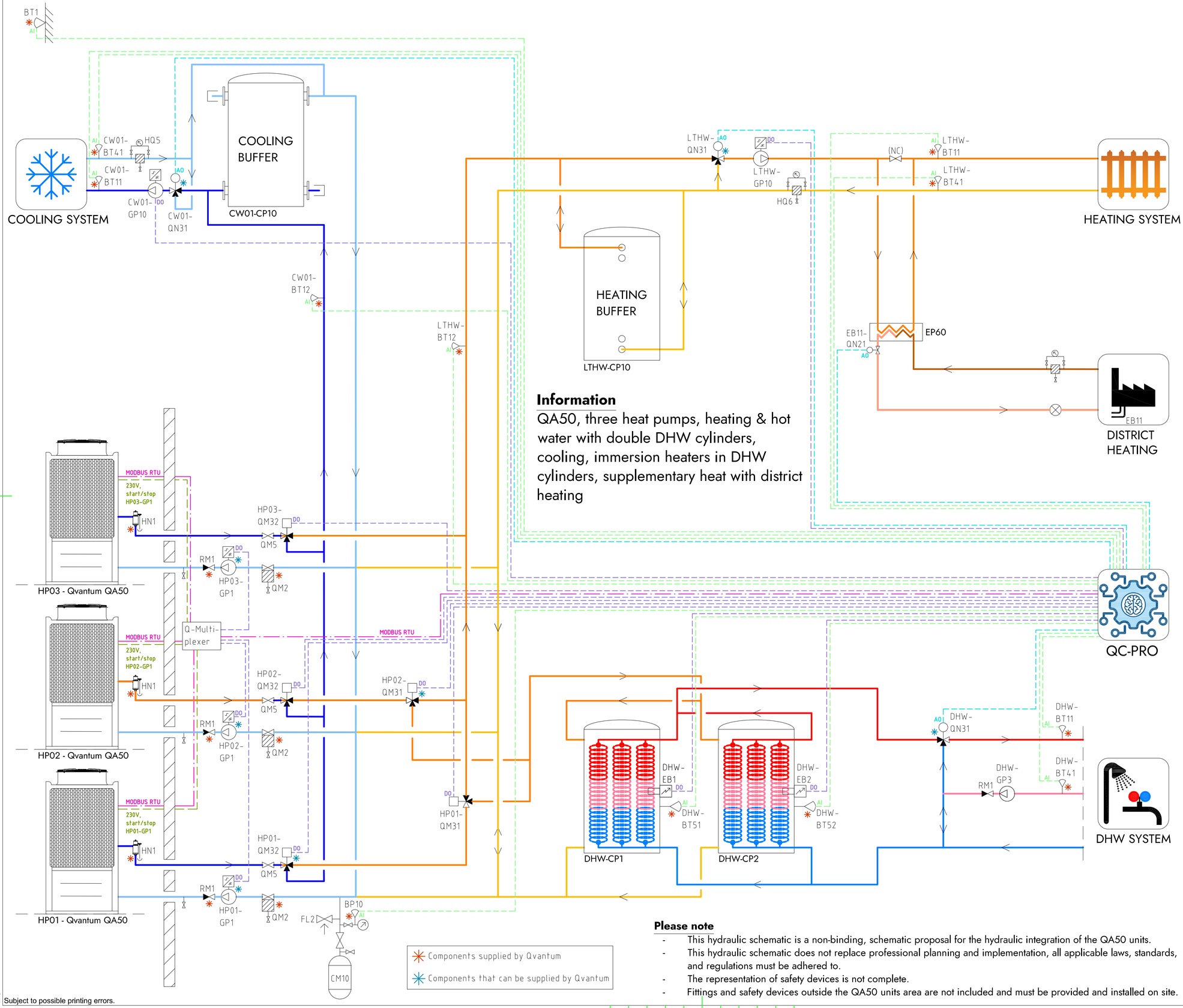
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with district heating

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## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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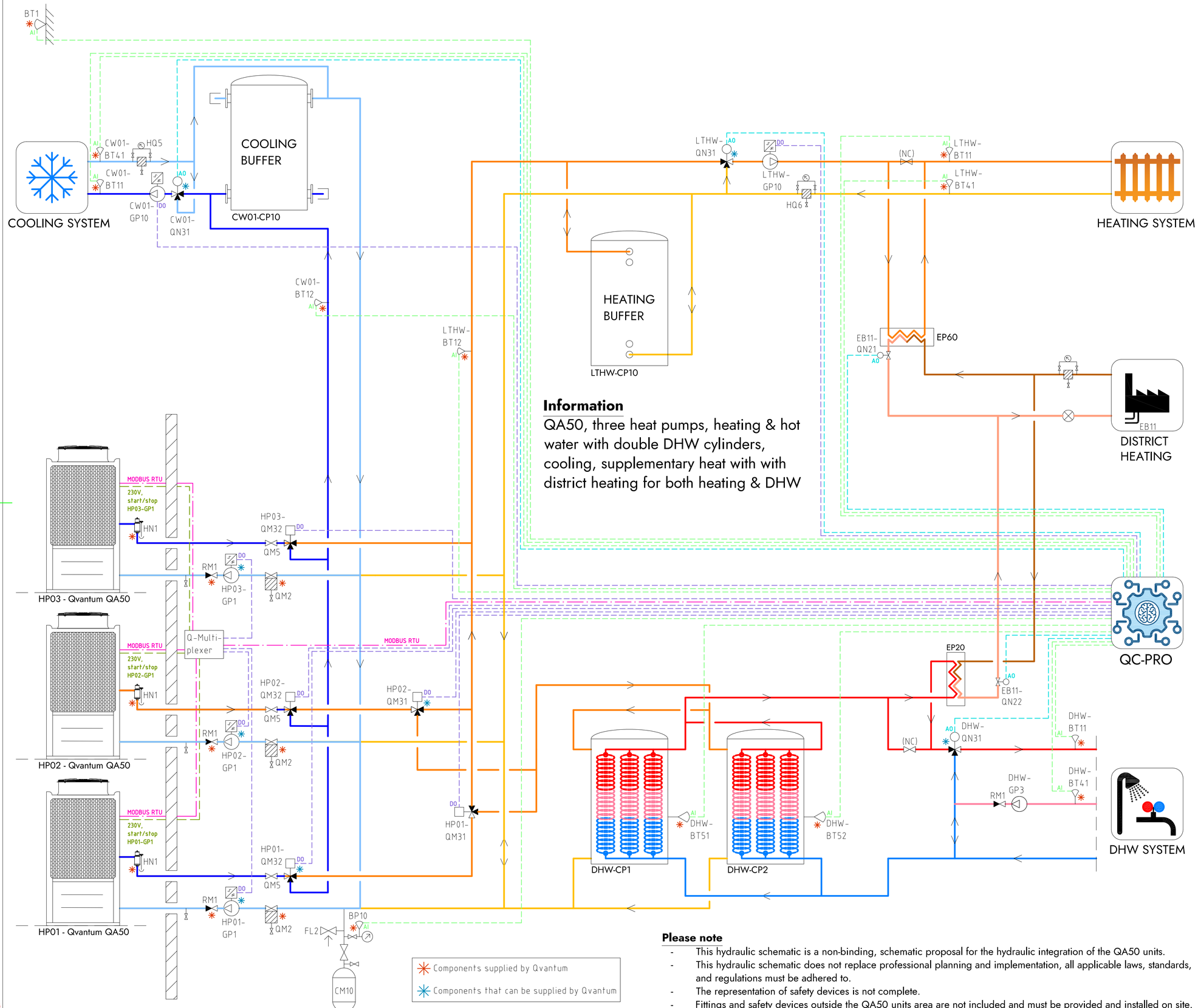
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HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, heating & hot water with double DHW cylinders, cooling, supplementary heat with with district heating for both heating & DHW

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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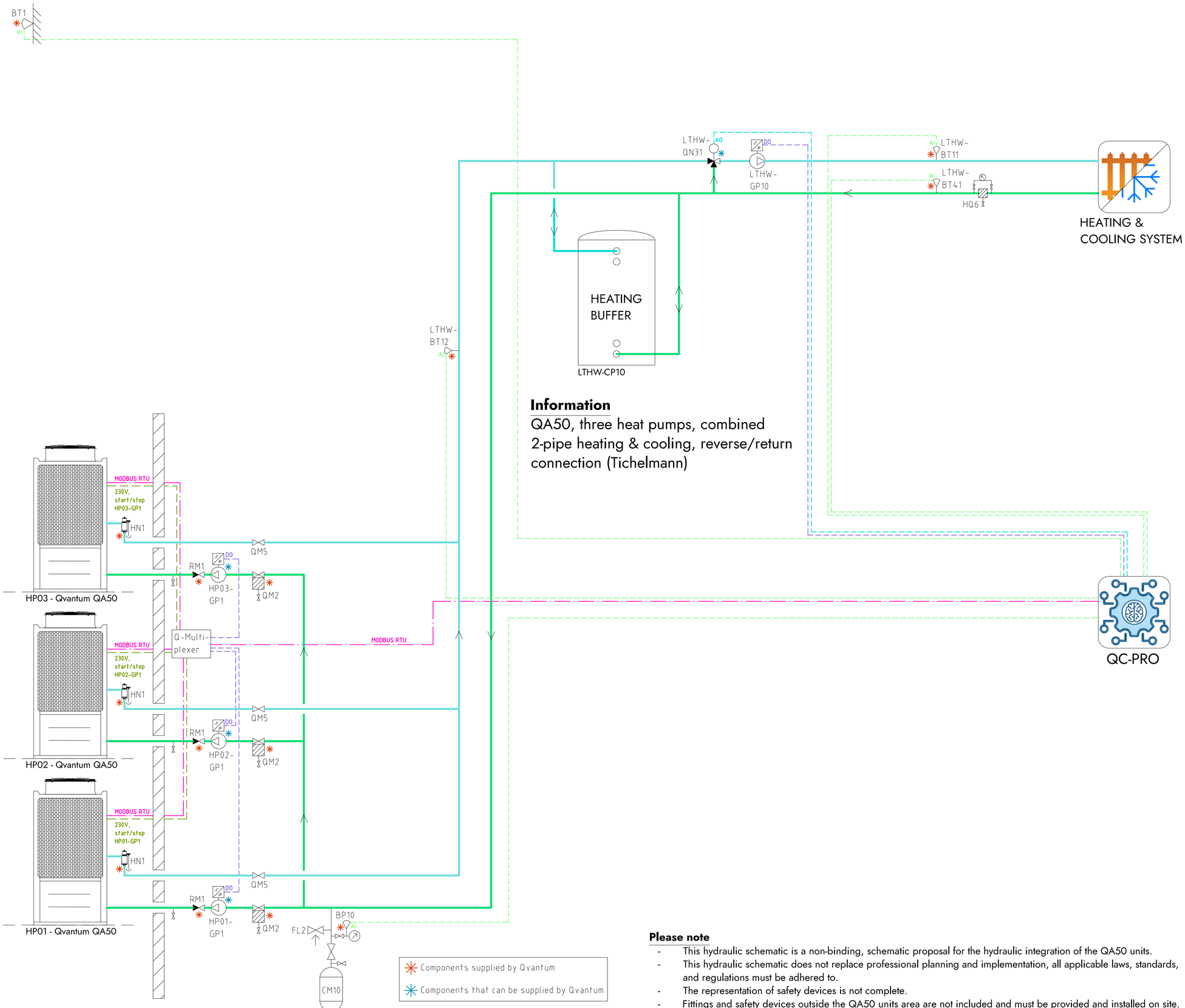
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, combined
2-pipe heating & cooling, reverse/return
connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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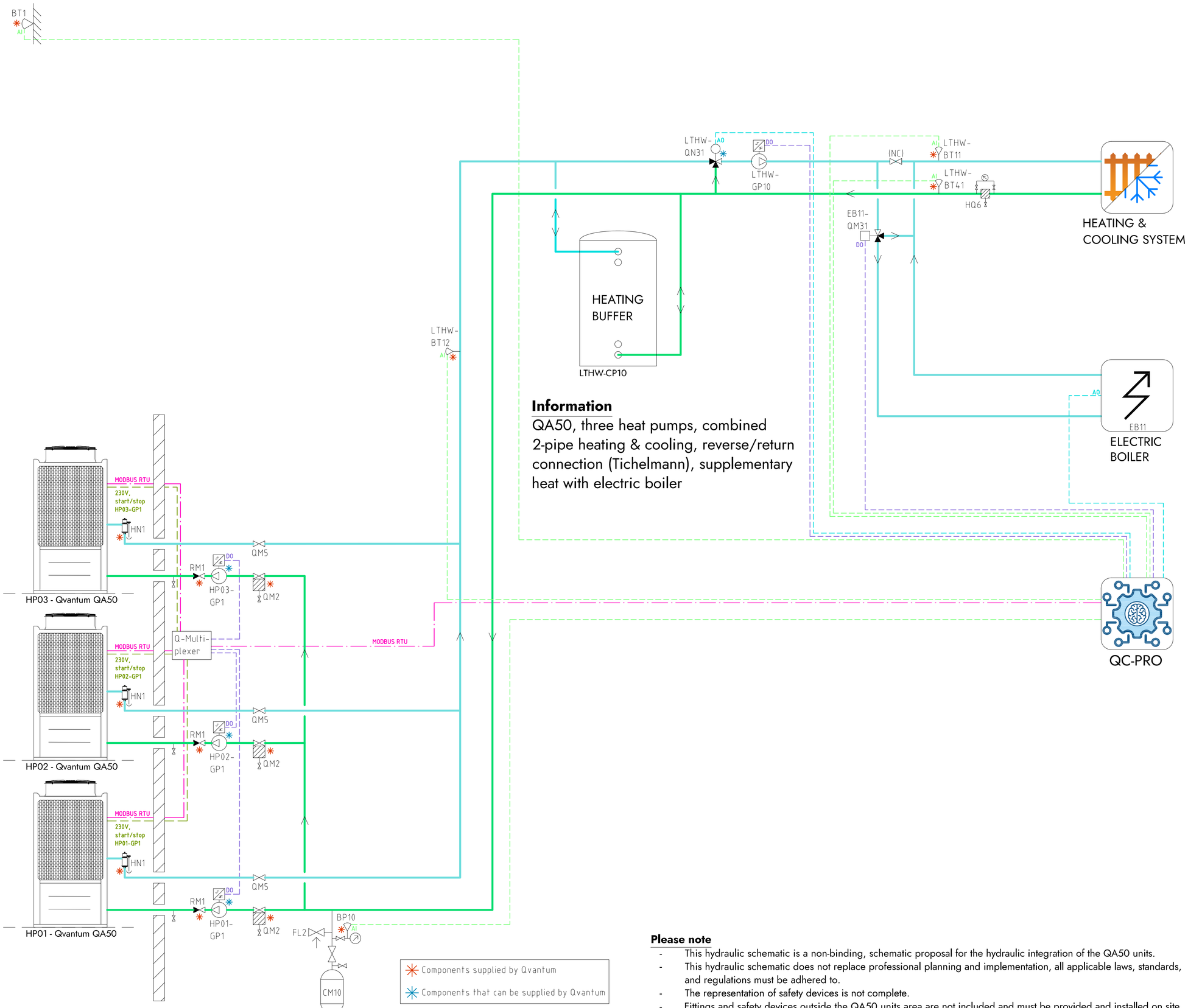
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, three heat pumps, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

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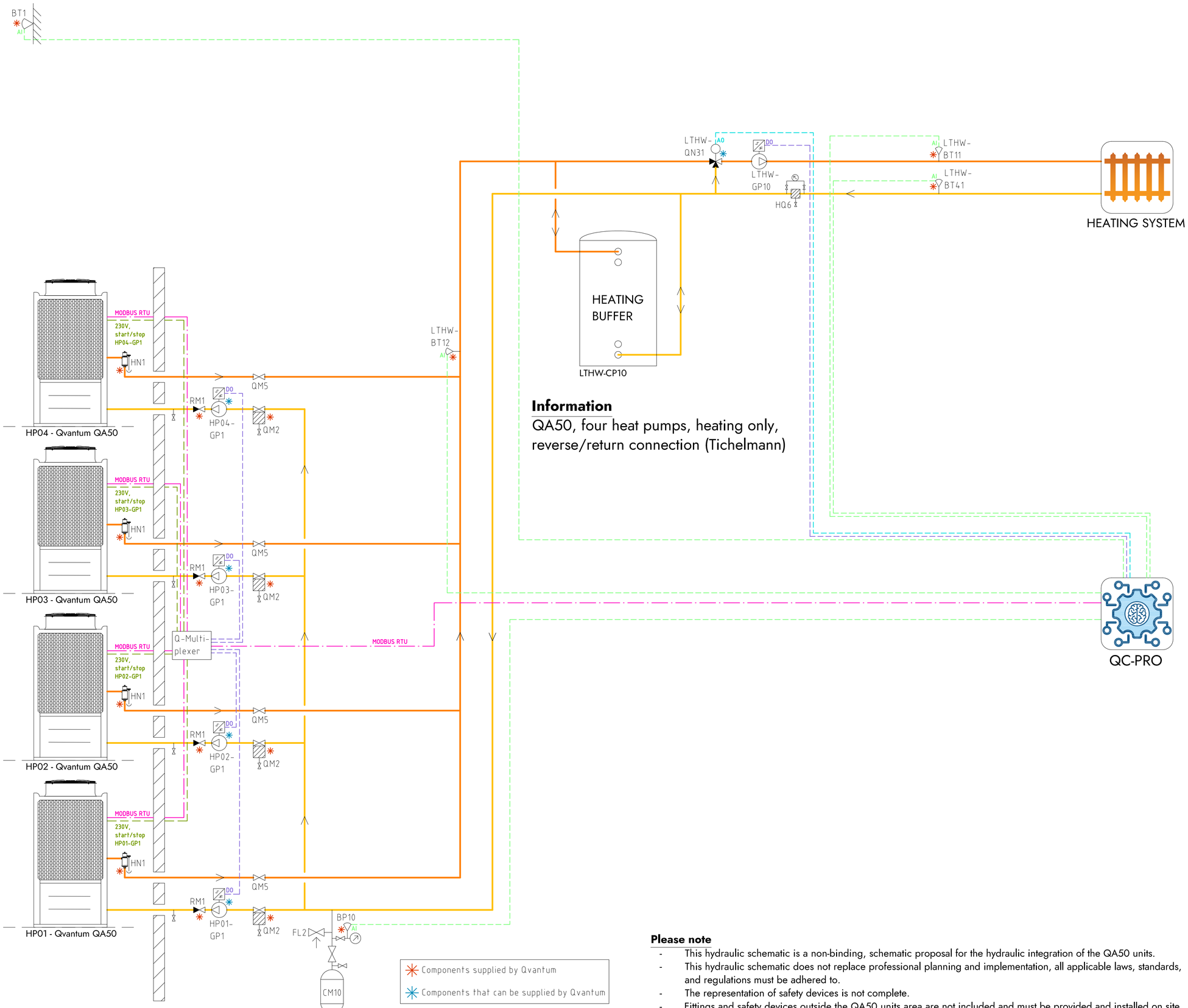
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with four heat pumps

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating only, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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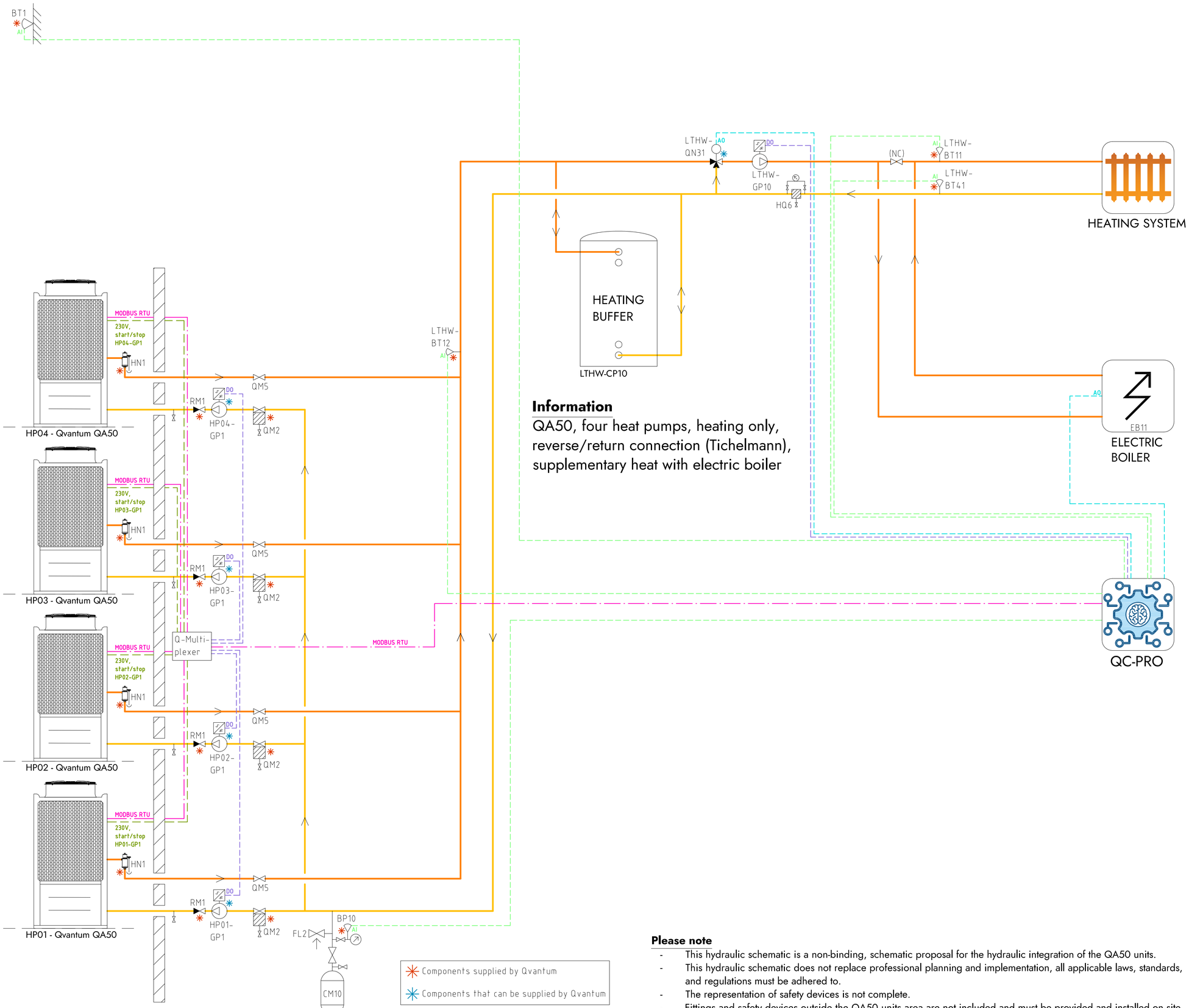
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LAGER: SB11

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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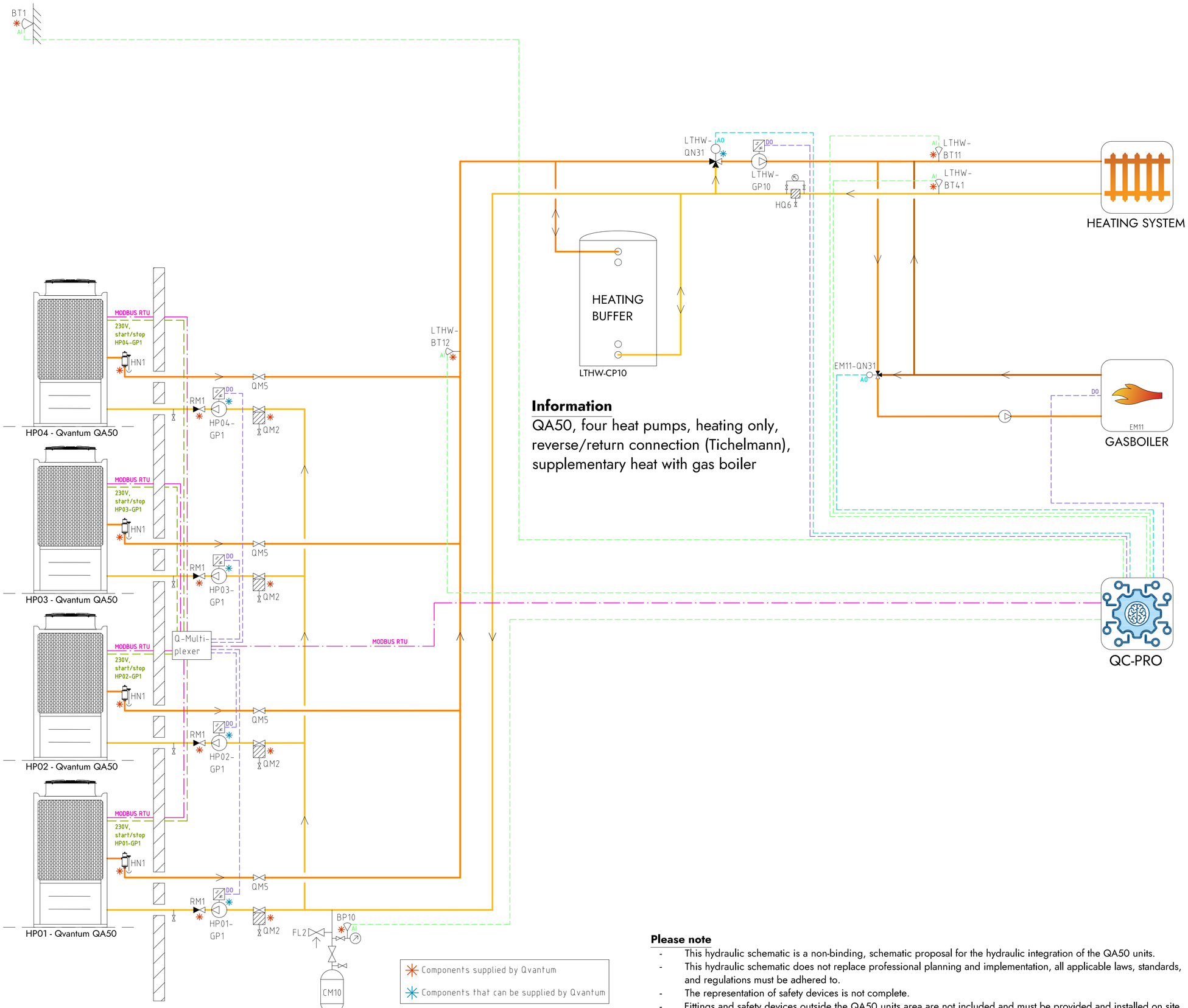
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

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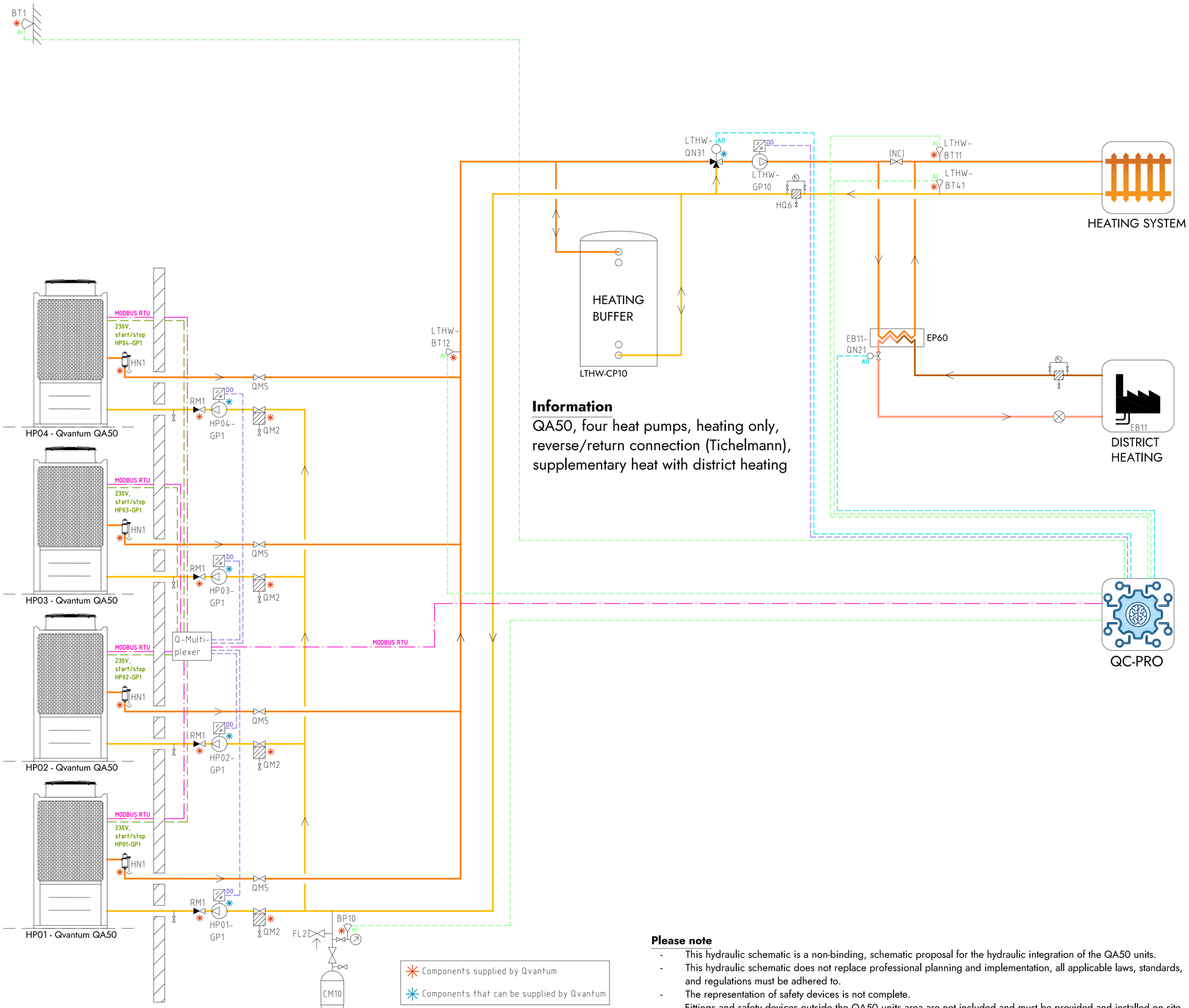
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating only, reverse/return connection (Tichelmann), supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

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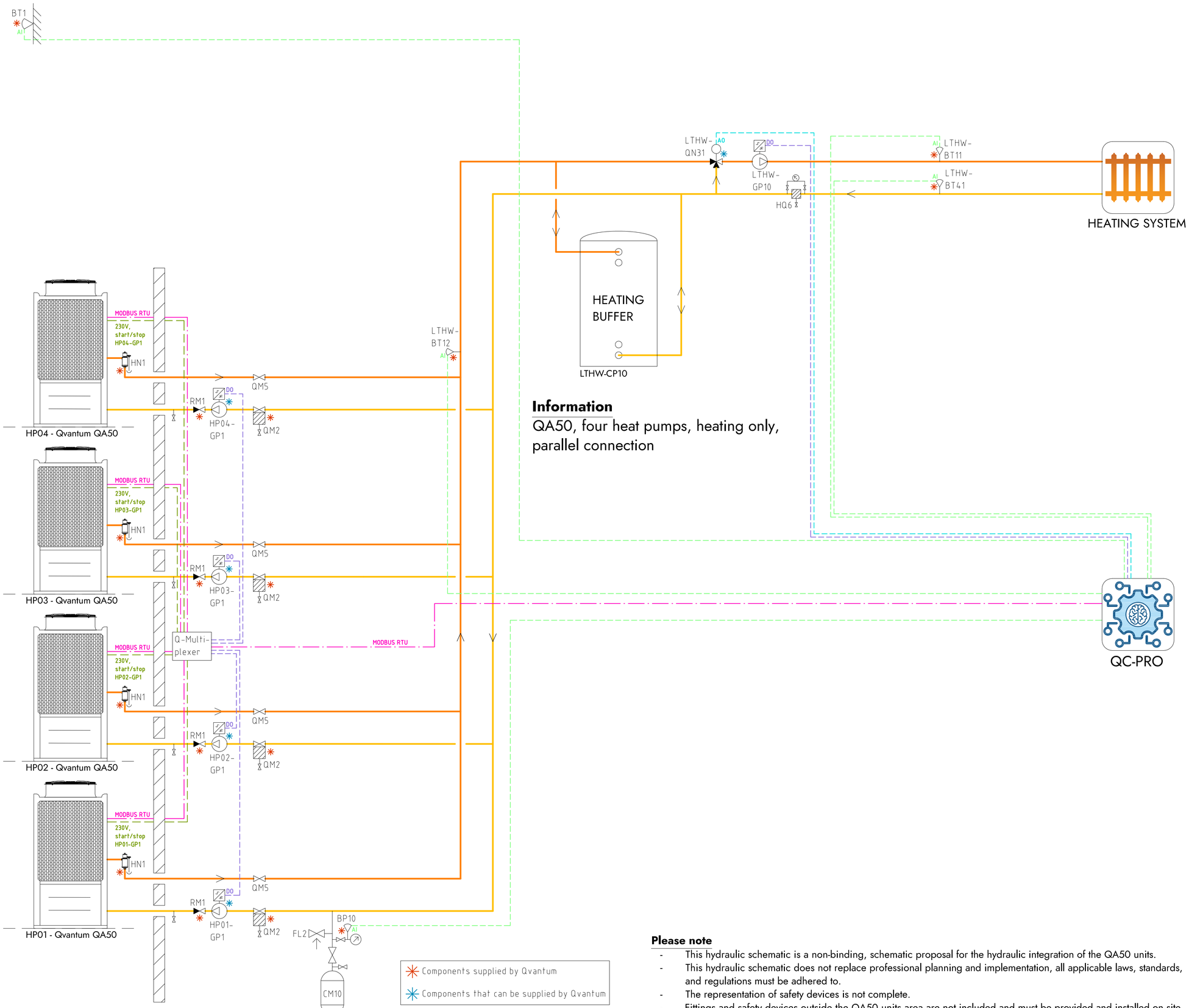
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating only, parallel connection

Components supplied by Qvantum

Components that can be supplied by Qvantum

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## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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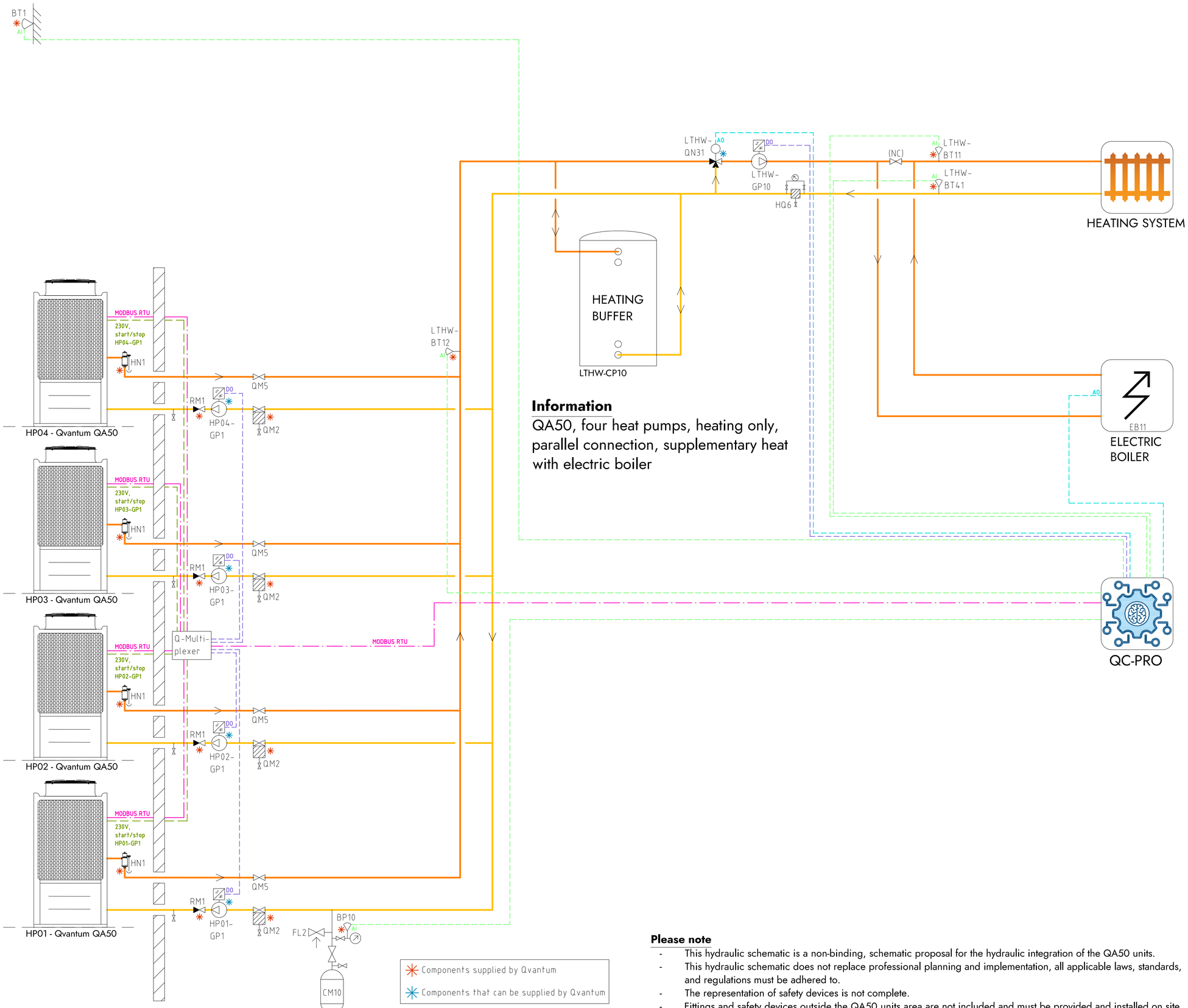
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Classification of objects in accordance with IEC 81346-2.




## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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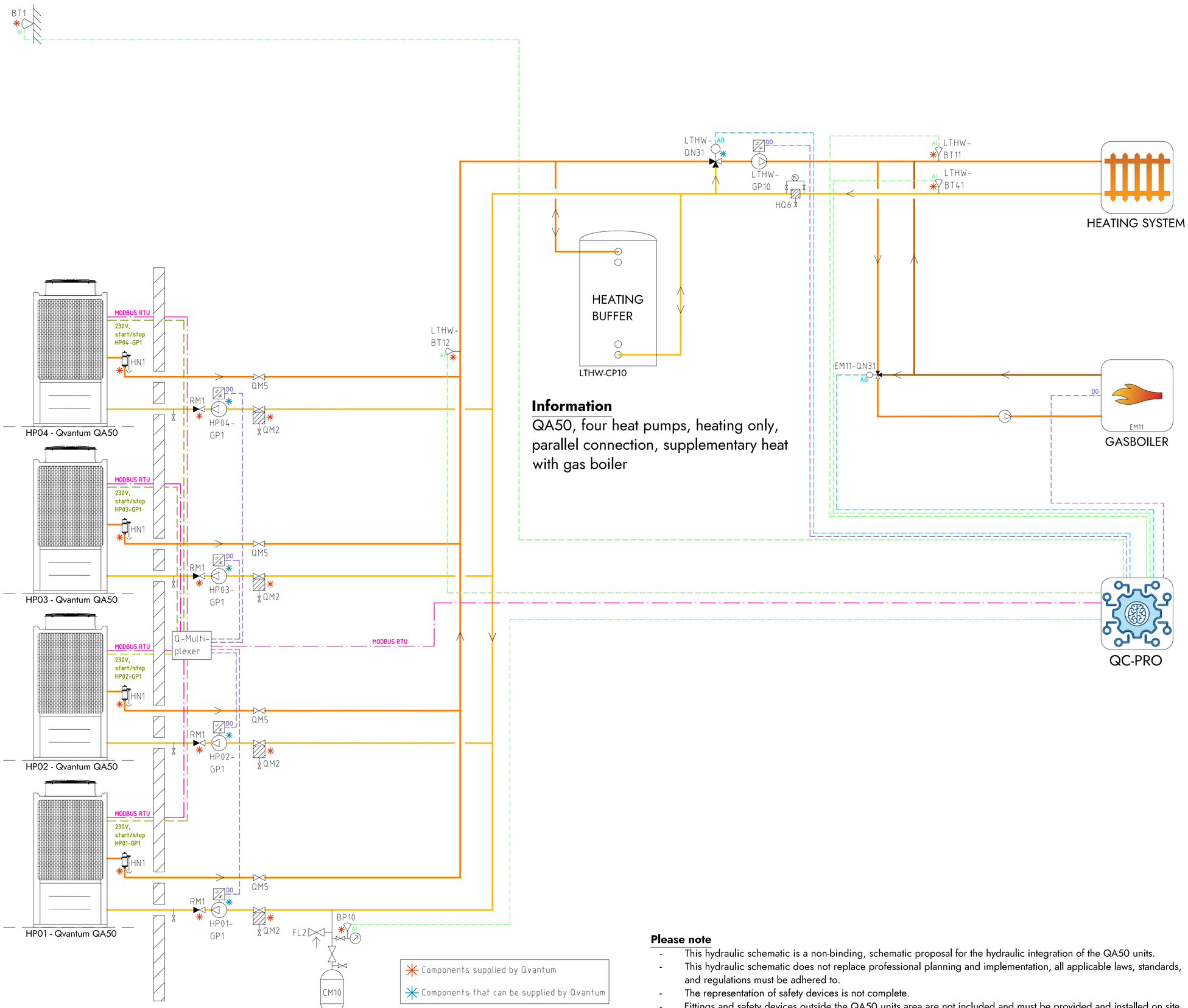
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-405 | 116 |

XREF:
LAGER: SB11
PLO: 2026-09-08 22:29 G:\QVANTUM\01 INTERNT\05 RITNINGAR\DOCKNINGSPRINCIPER\QVANTUM QA\RIT\QA50 - COMMERCIAL, FOUR HEAT PUMPS_2026-09-07 (DO TO GP1).DWG JONAS

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating only, parallel connection, supplementary heat with gas boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

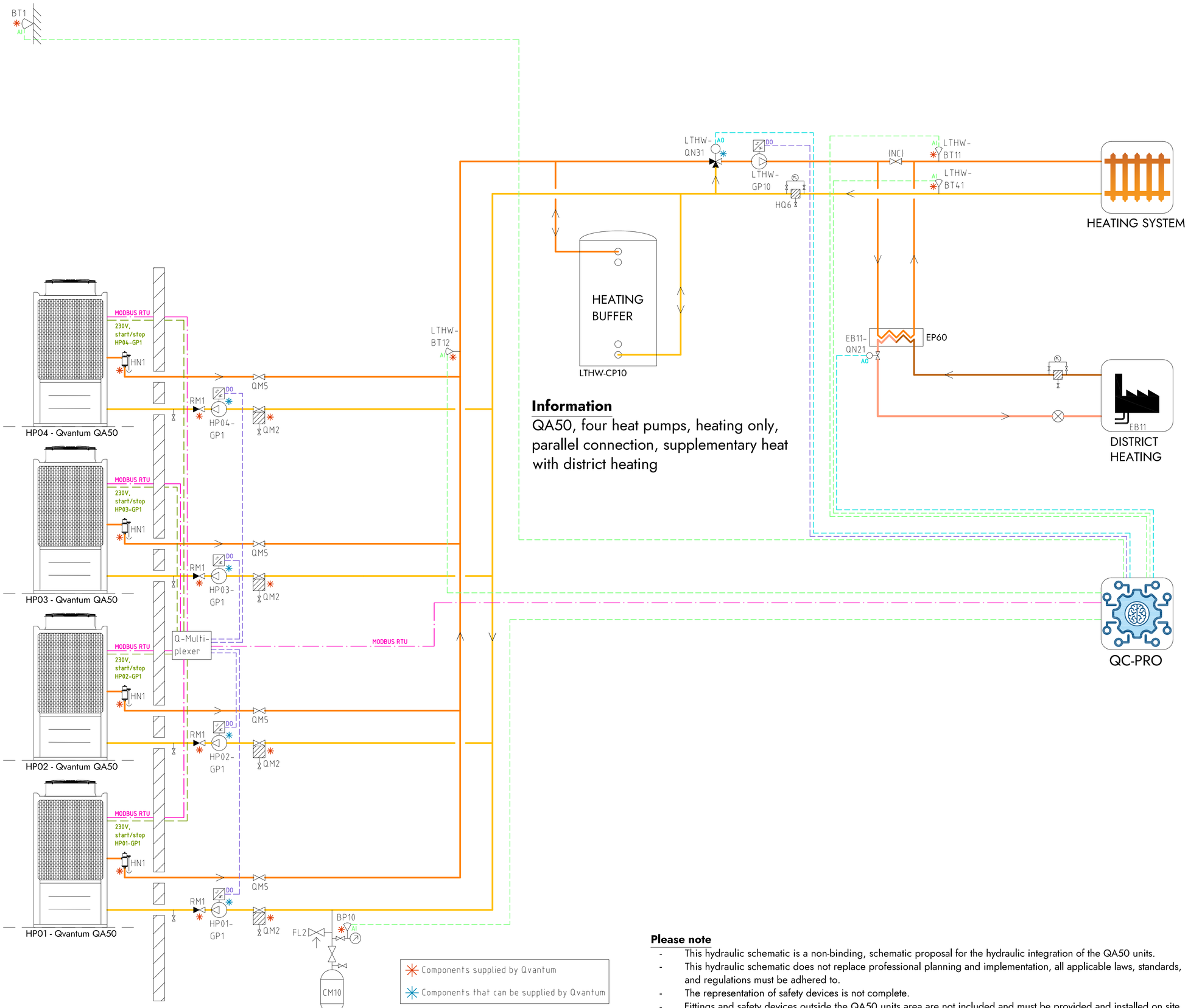
QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-406 | 117 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating only, parallel connection, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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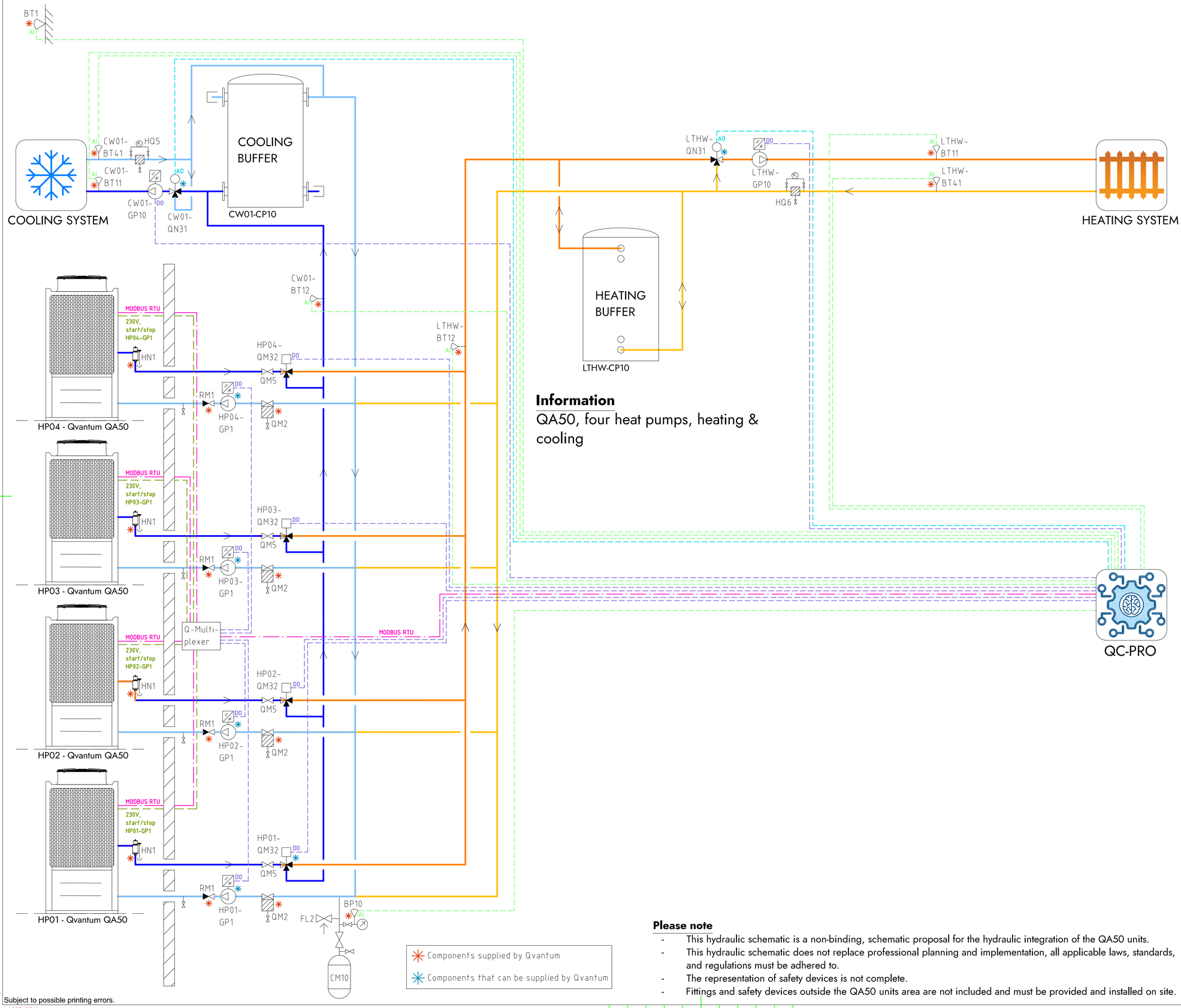
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & cooling

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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- The representation of safety devices is not complete.
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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

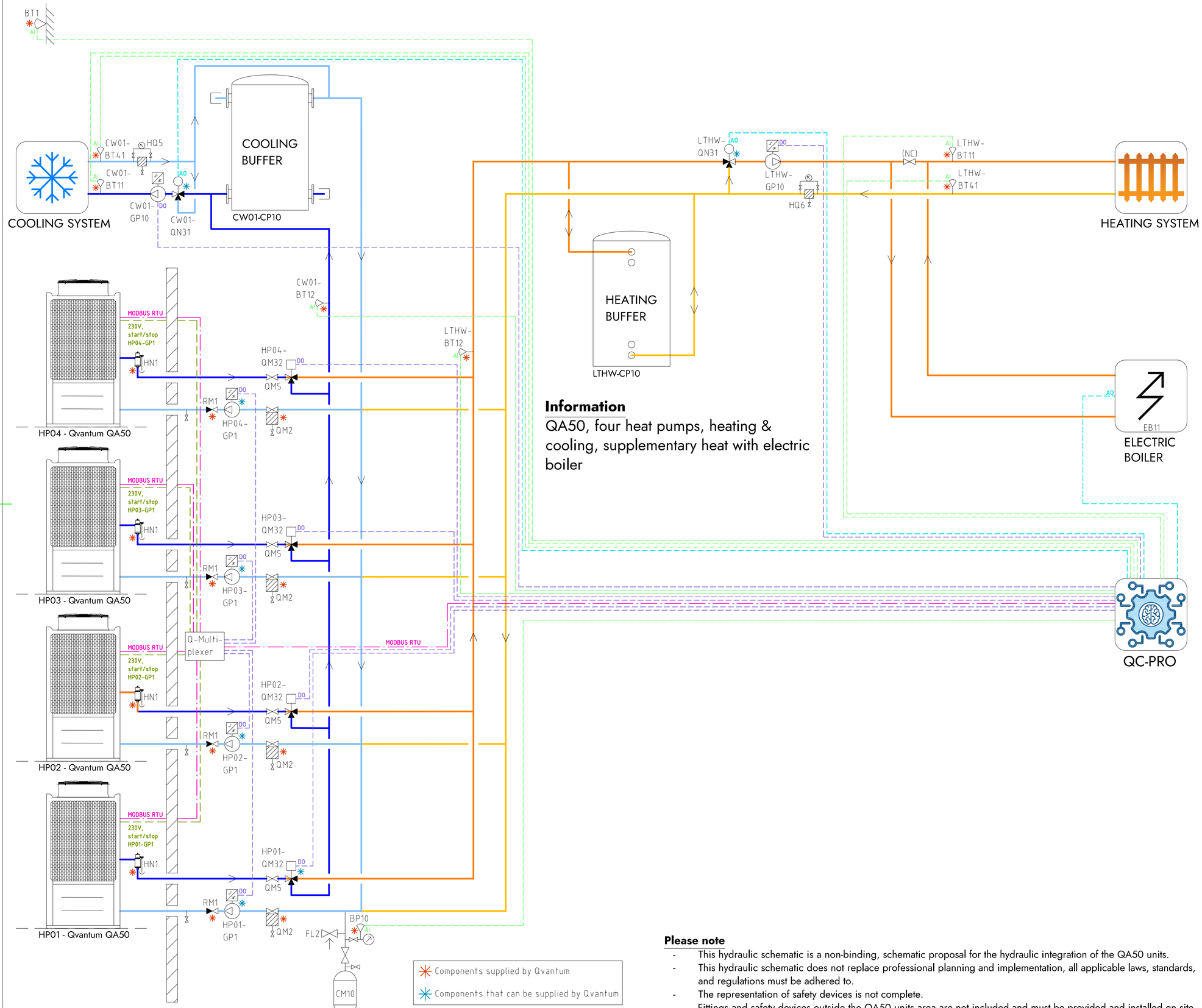
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & cooling, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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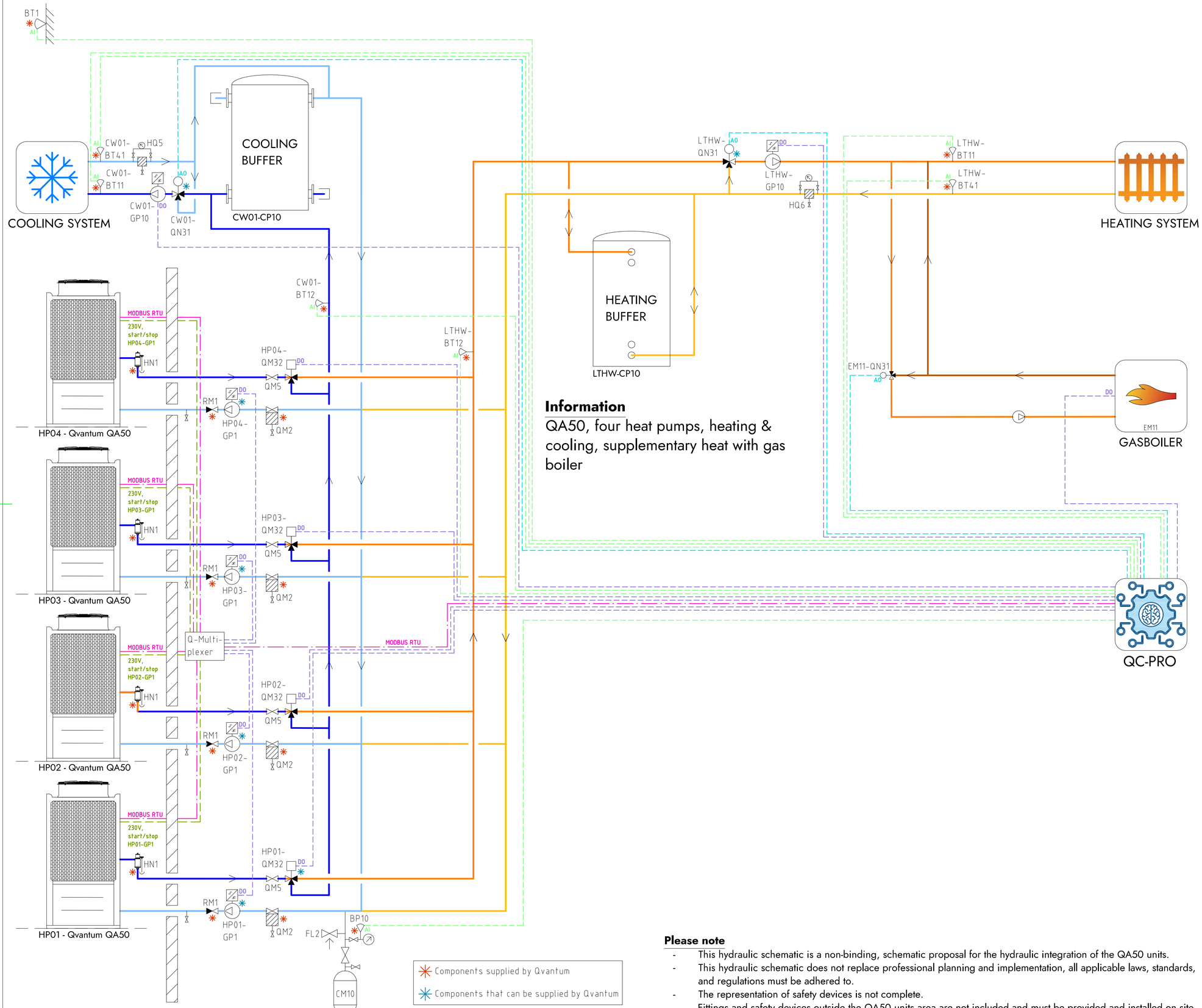
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-409 | 120 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & cooling, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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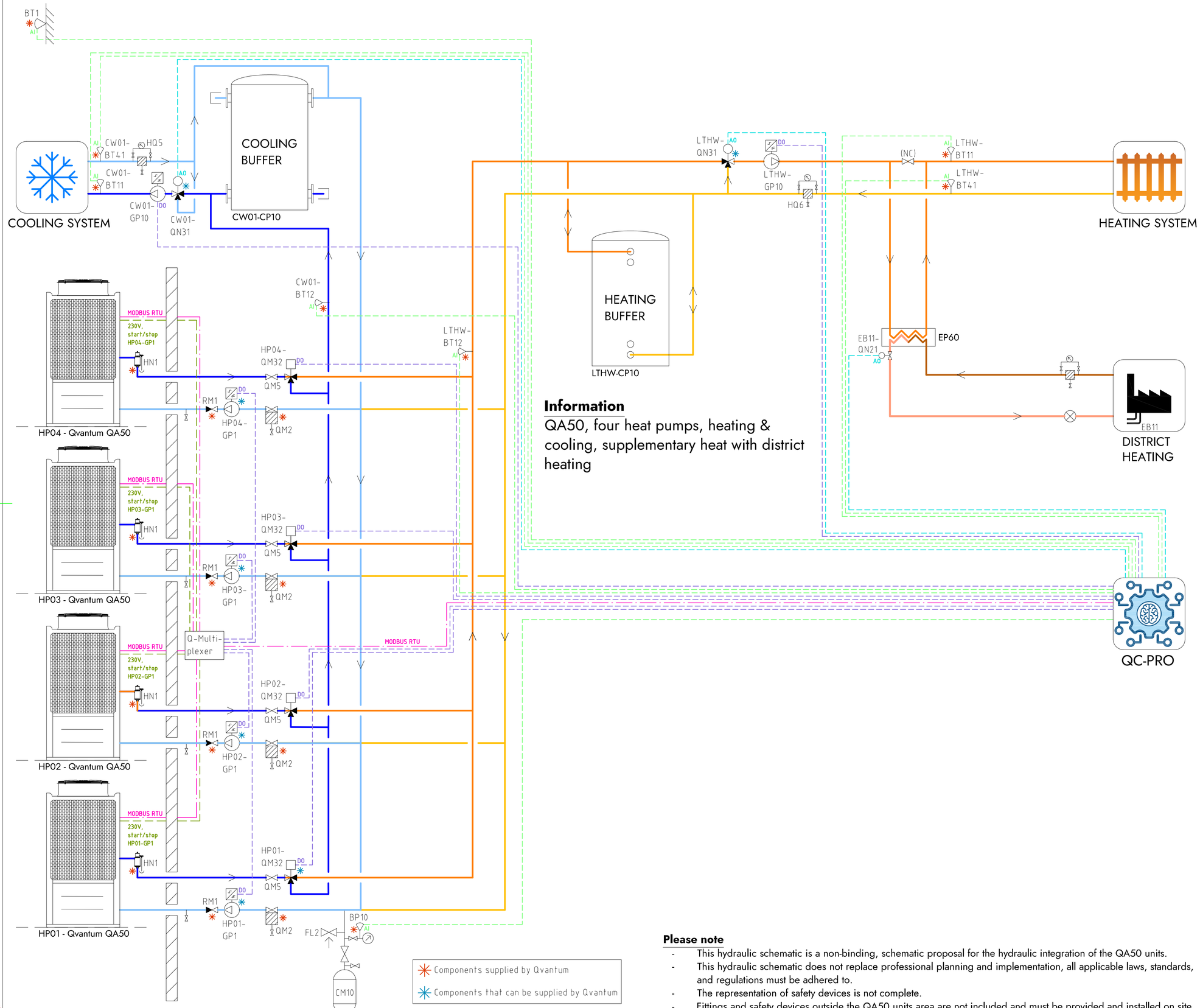
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-410 | 121 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & cooling, supplementary heat with district heating

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Copyright notice ISO16016

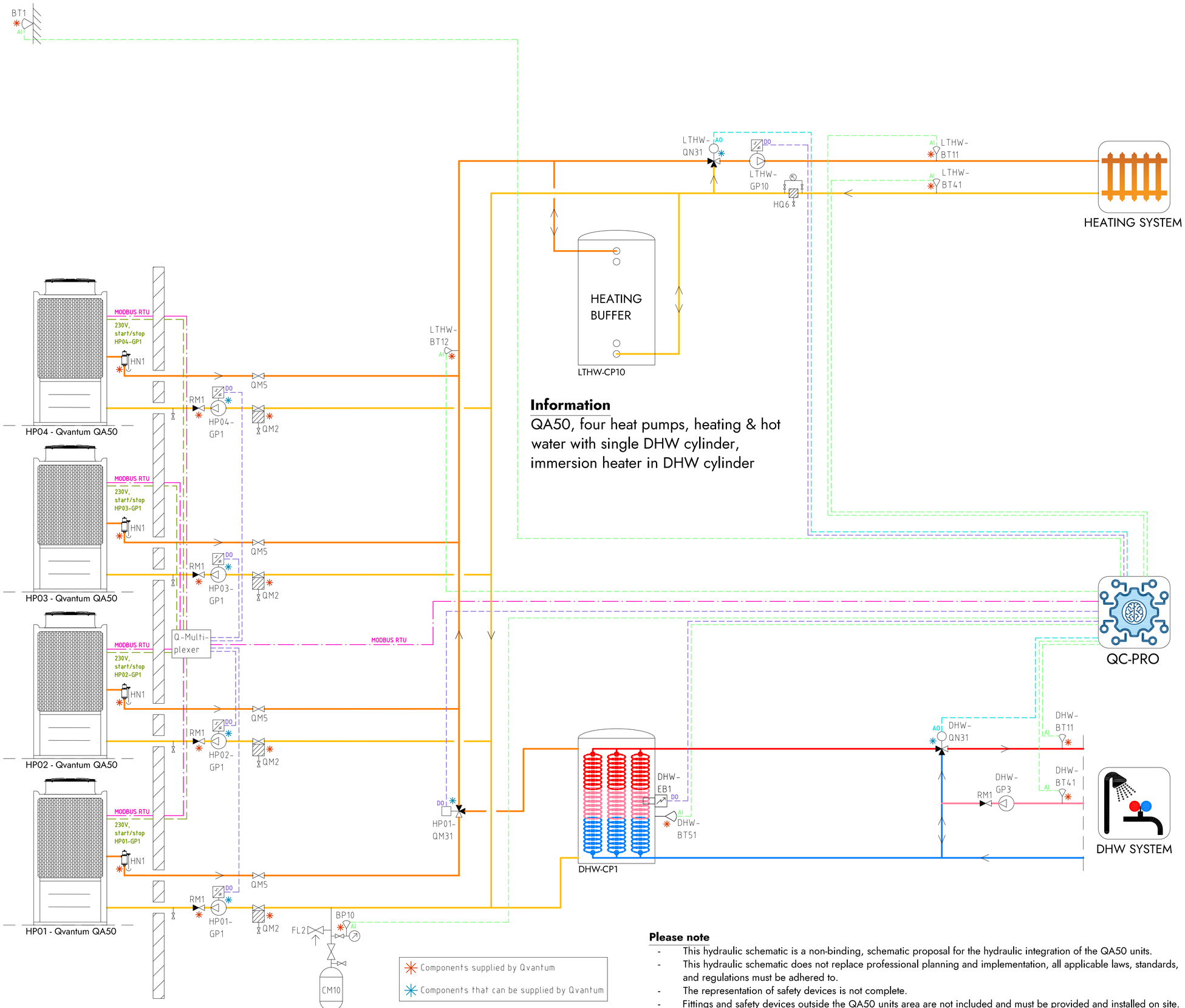
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-411 | 122 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, immersion heater in DHW cylinder

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

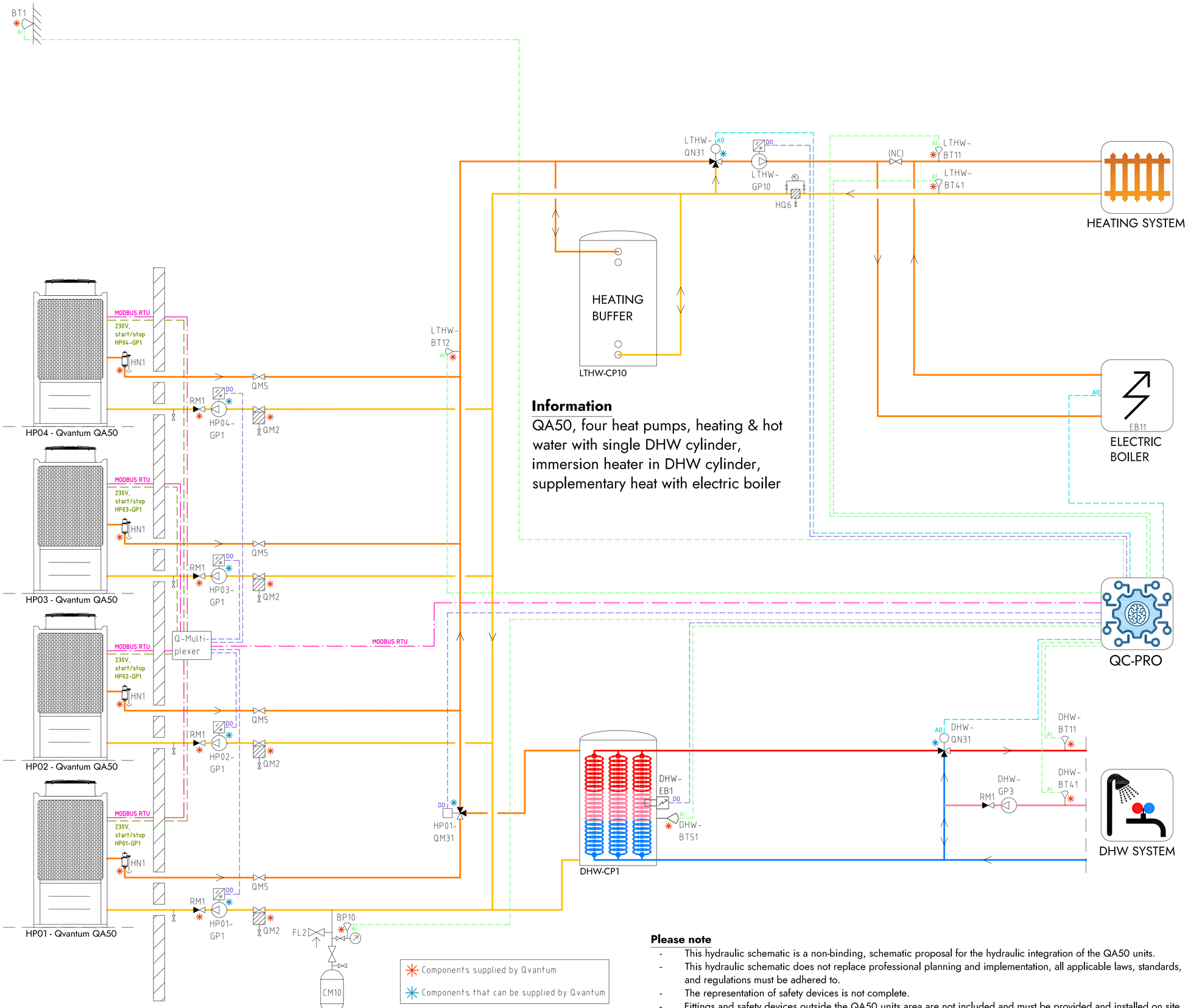
QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-412 | 123 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, immersion heater in DHW cylinder, supplementary heat with electric boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric Boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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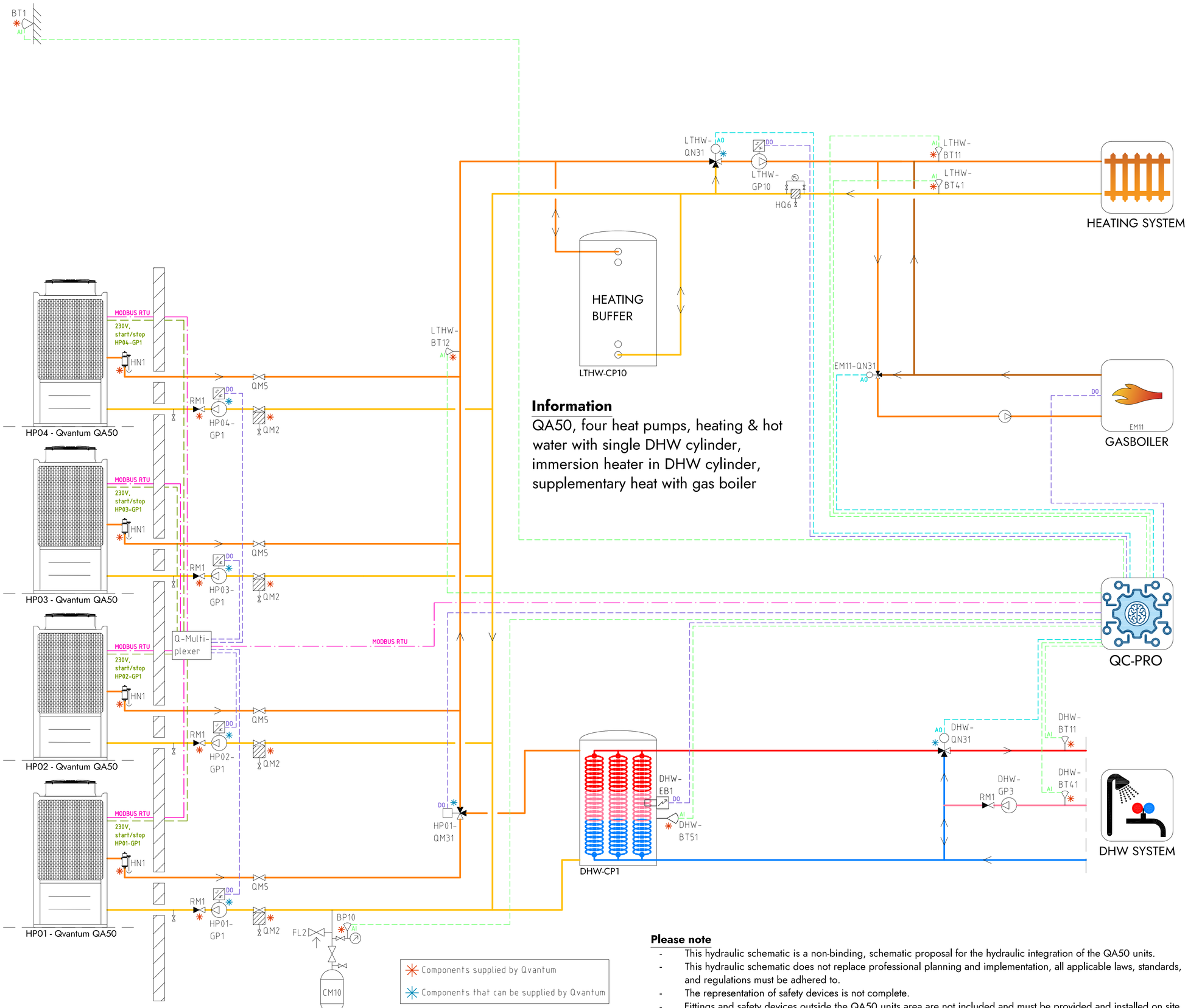
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-413 | 124 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, immersion heater in DHW cylinder, supplementary heat with gas boiler

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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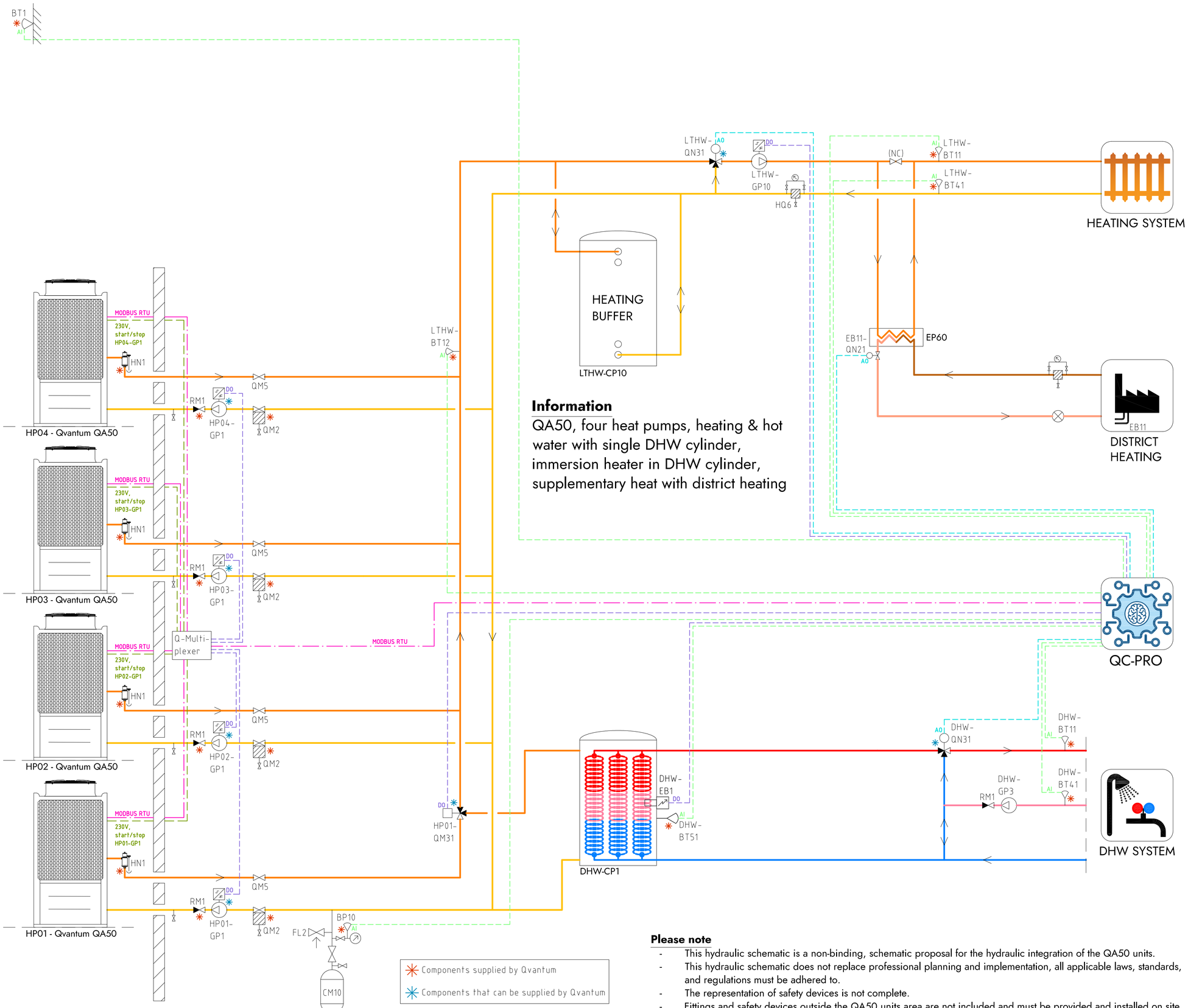
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, immersion heater in DHW cylinder, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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- The representation of safety devices is not complete.
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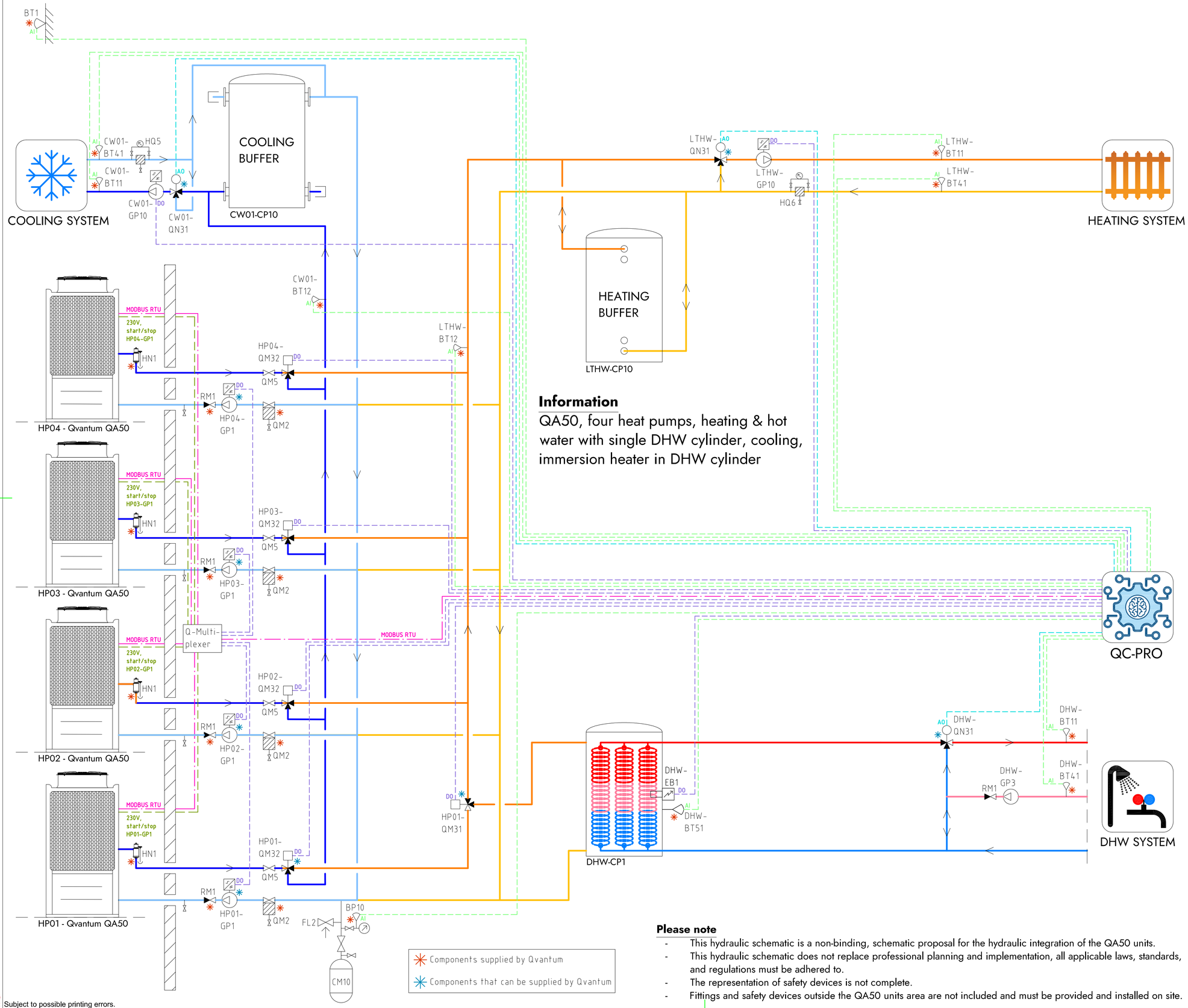
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
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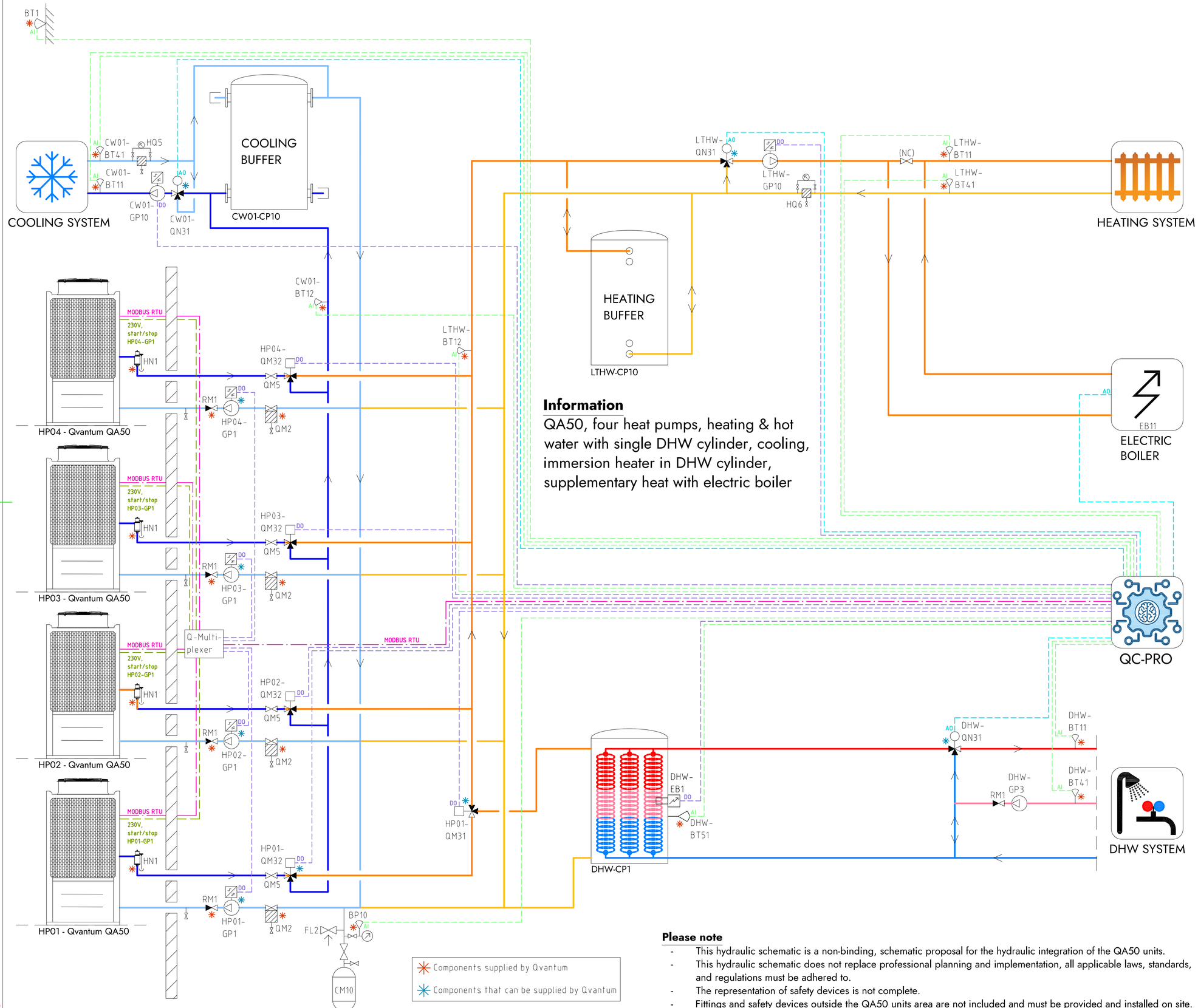
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with electric boiler

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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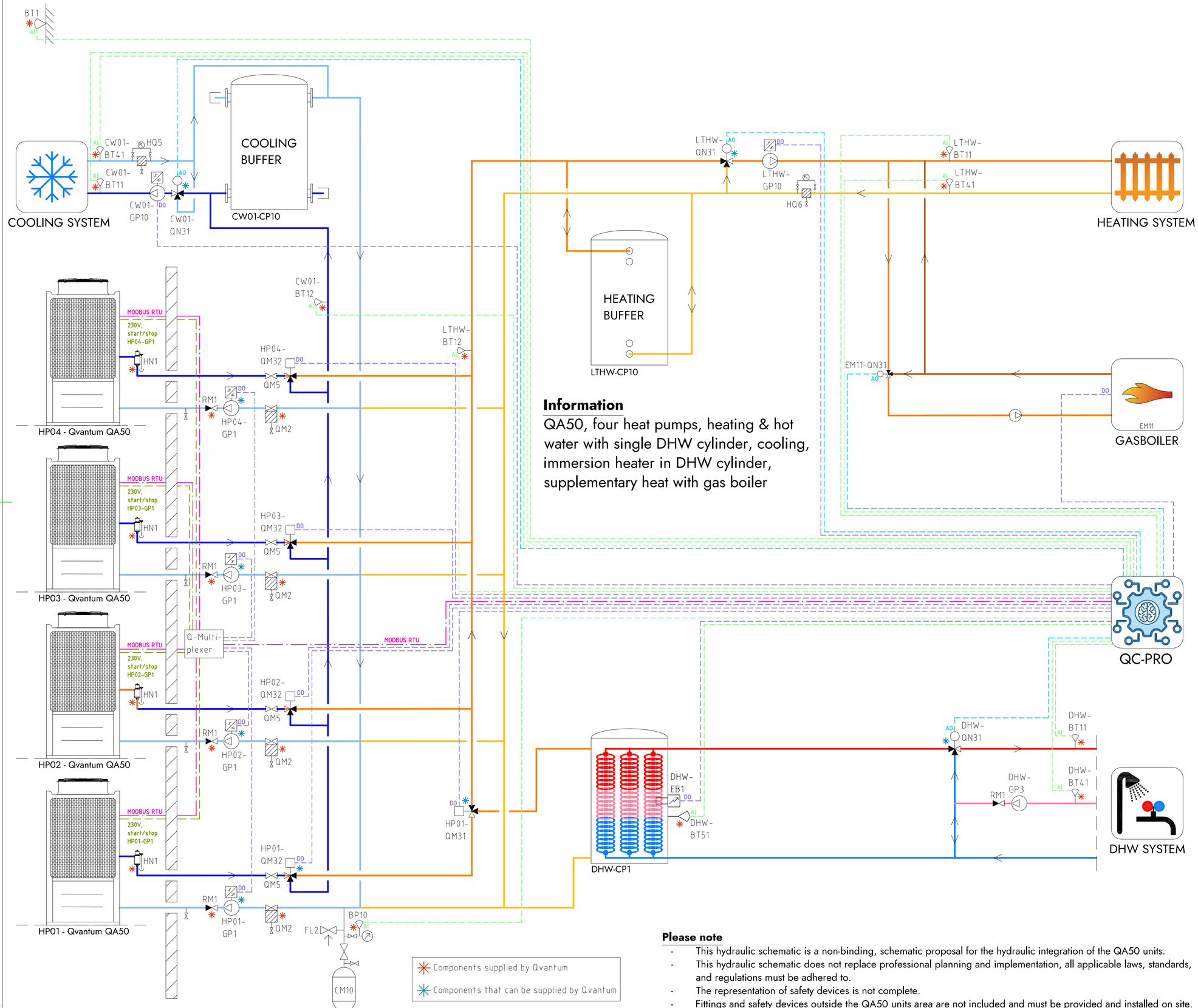
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with gas boiler

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES

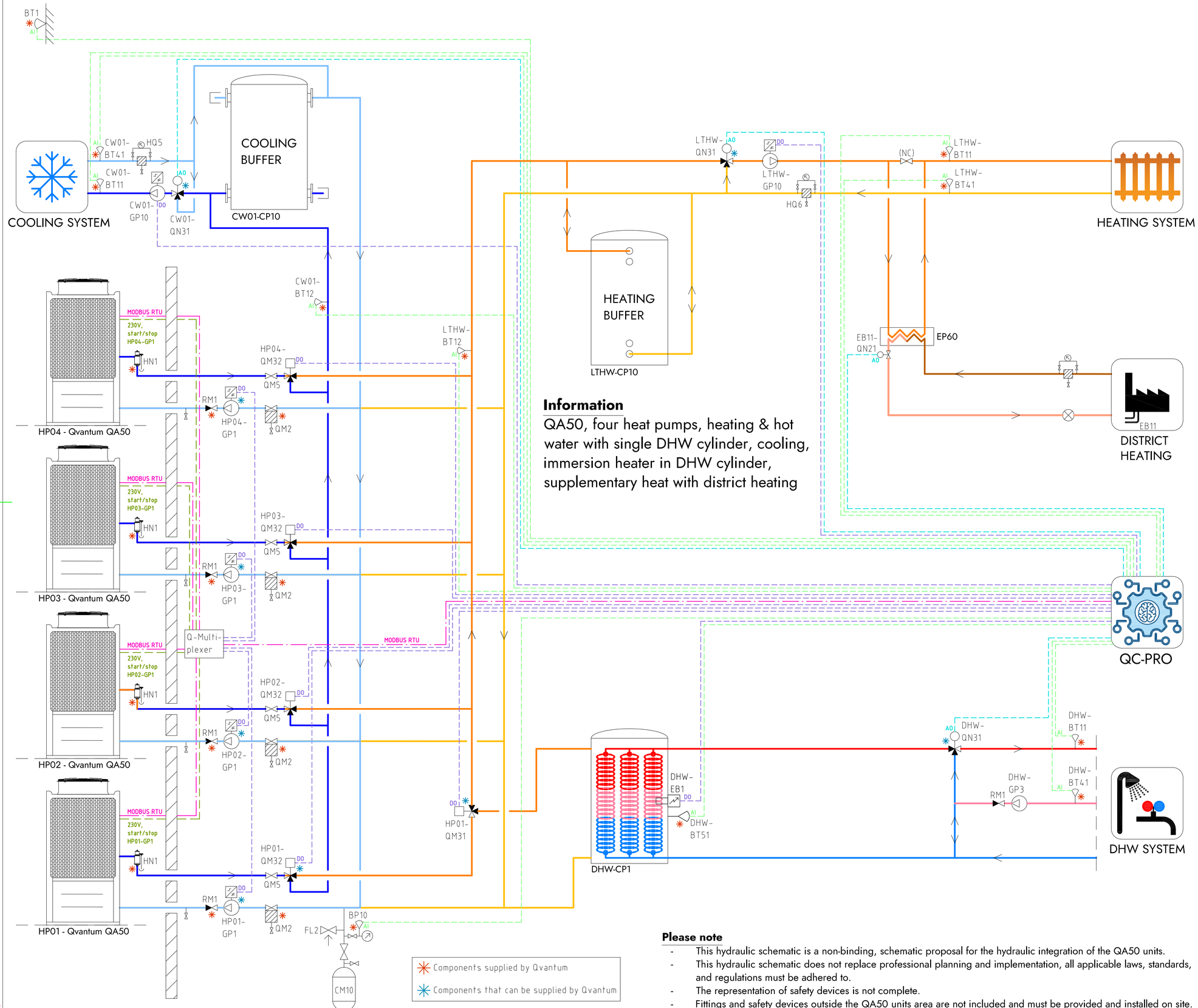
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with single DHW cylinder, cooling, immersion heater in DHW cylinder, supplementary heat with district heating

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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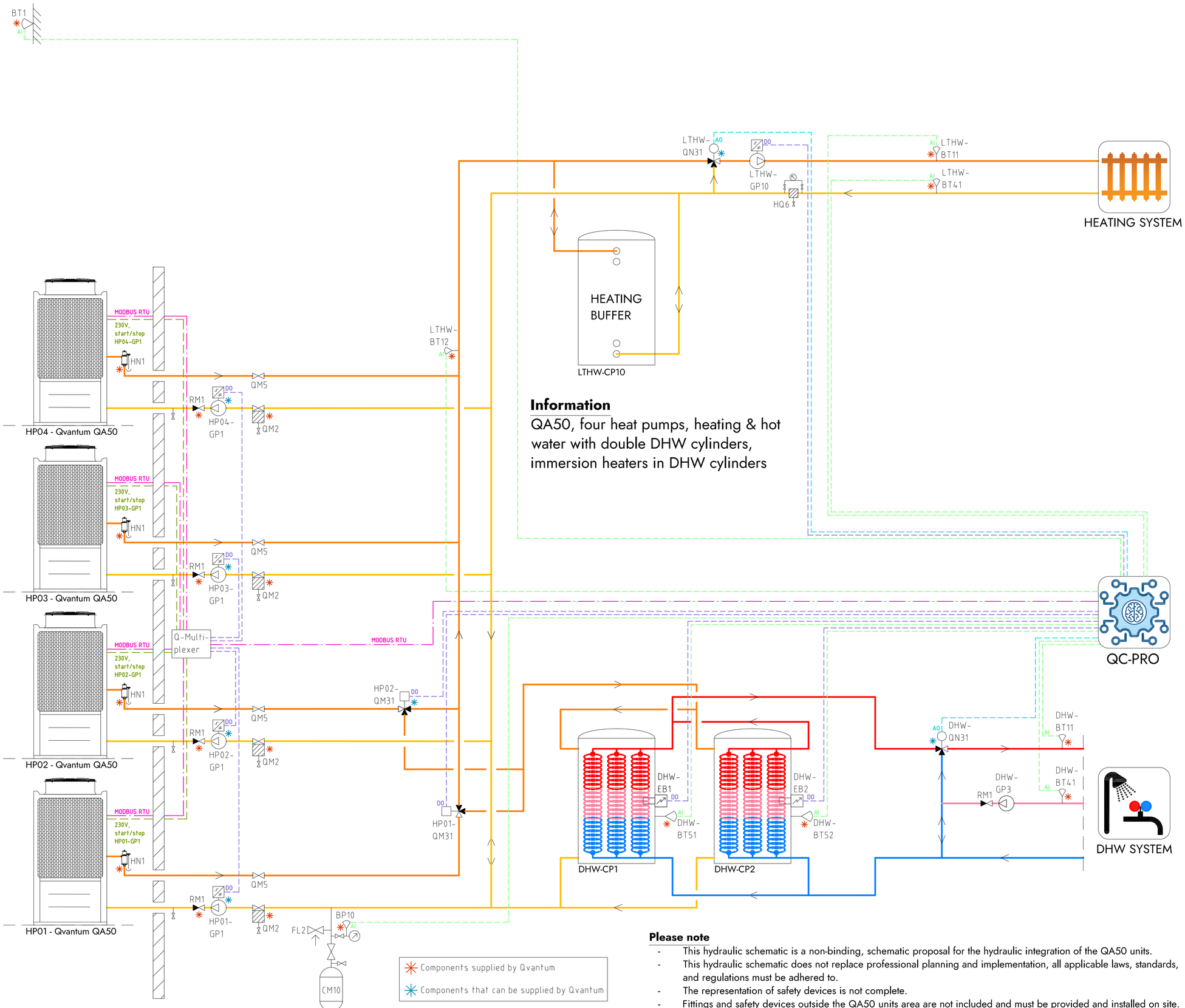
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, immersion heaters in DHW cylinders

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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- The representation of safety devices is not complete.
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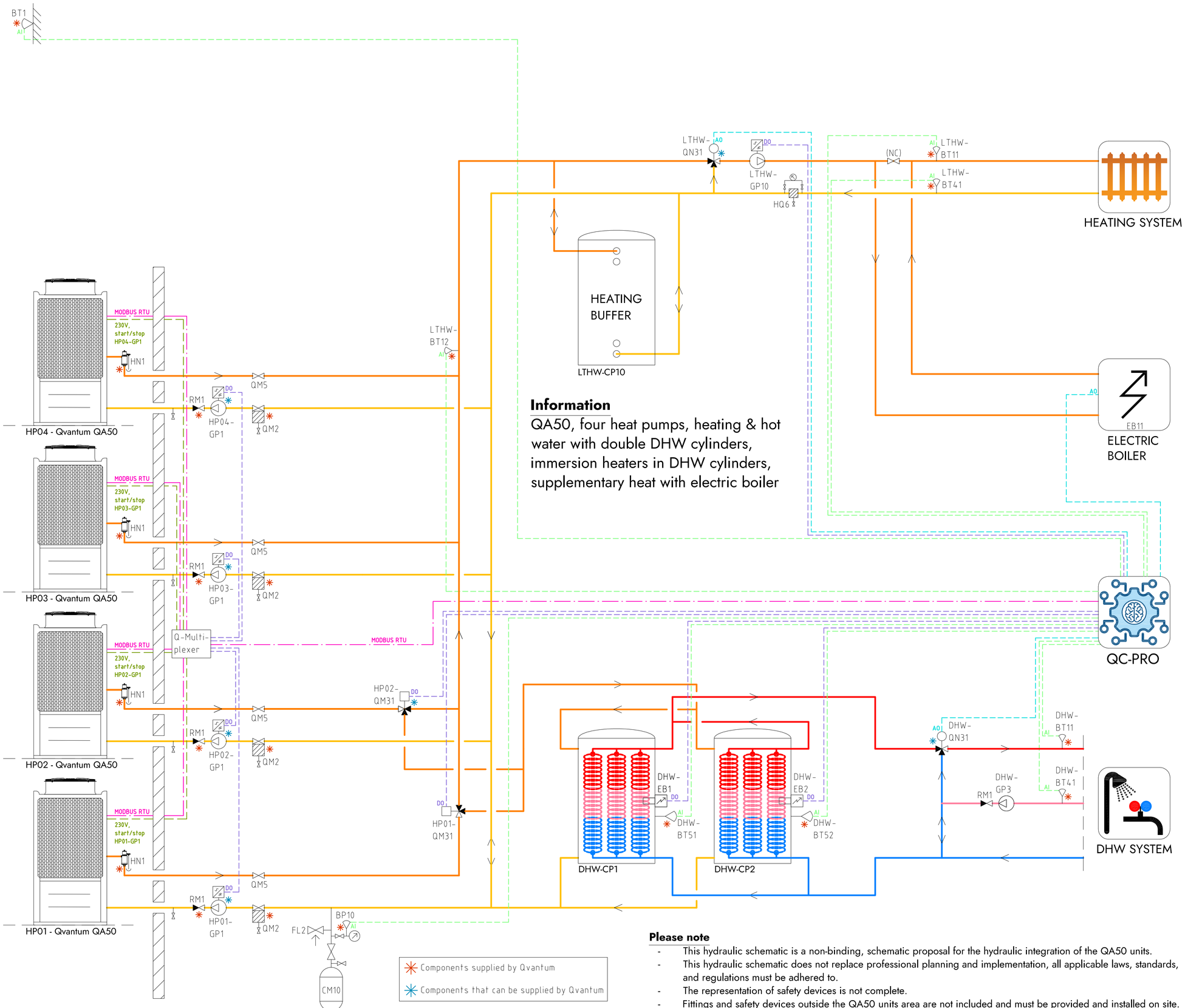
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-420 | 131 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, immersion heaters in DHW cylinders, supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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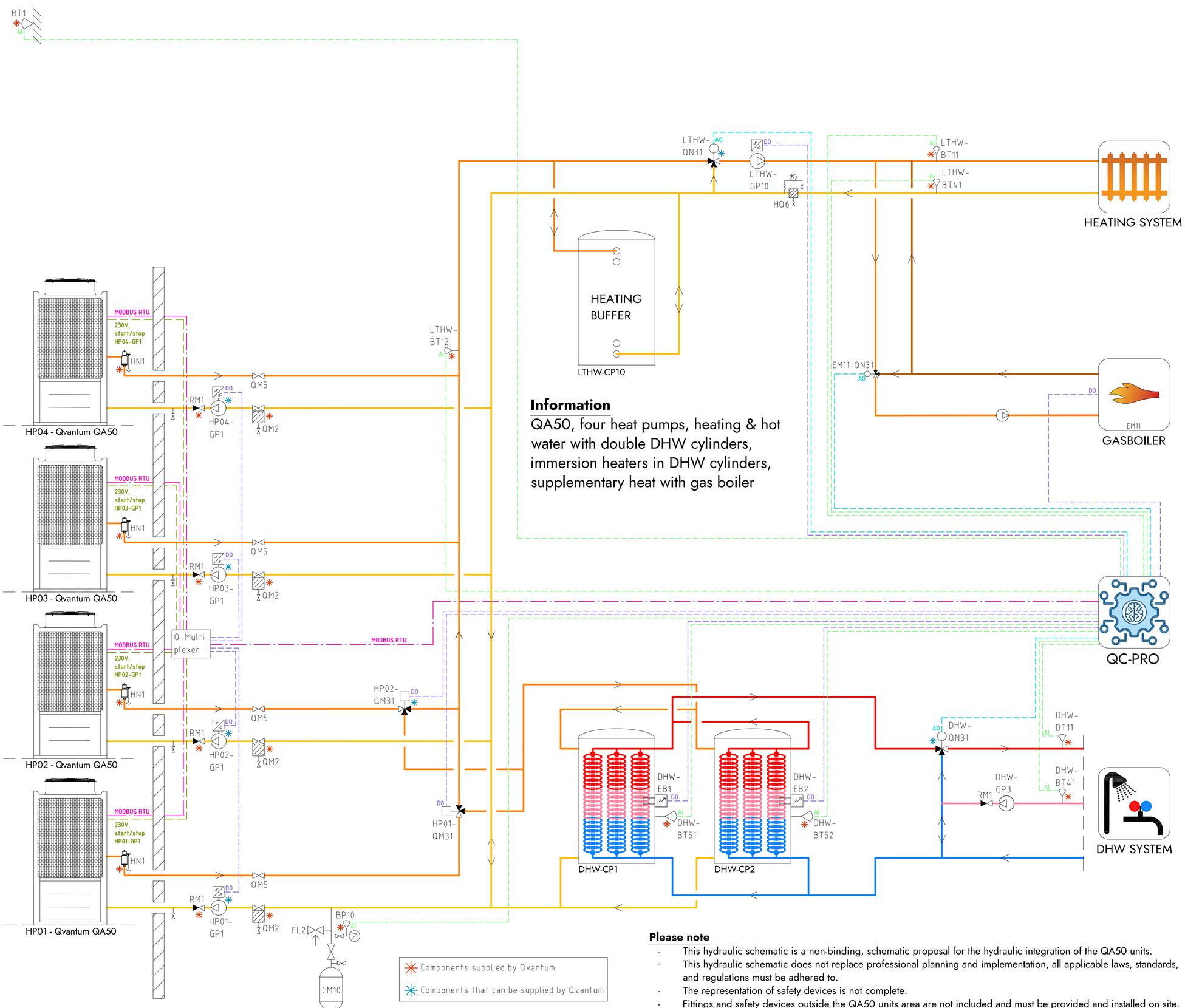
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, immersion heaters in DHW cylinders, supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

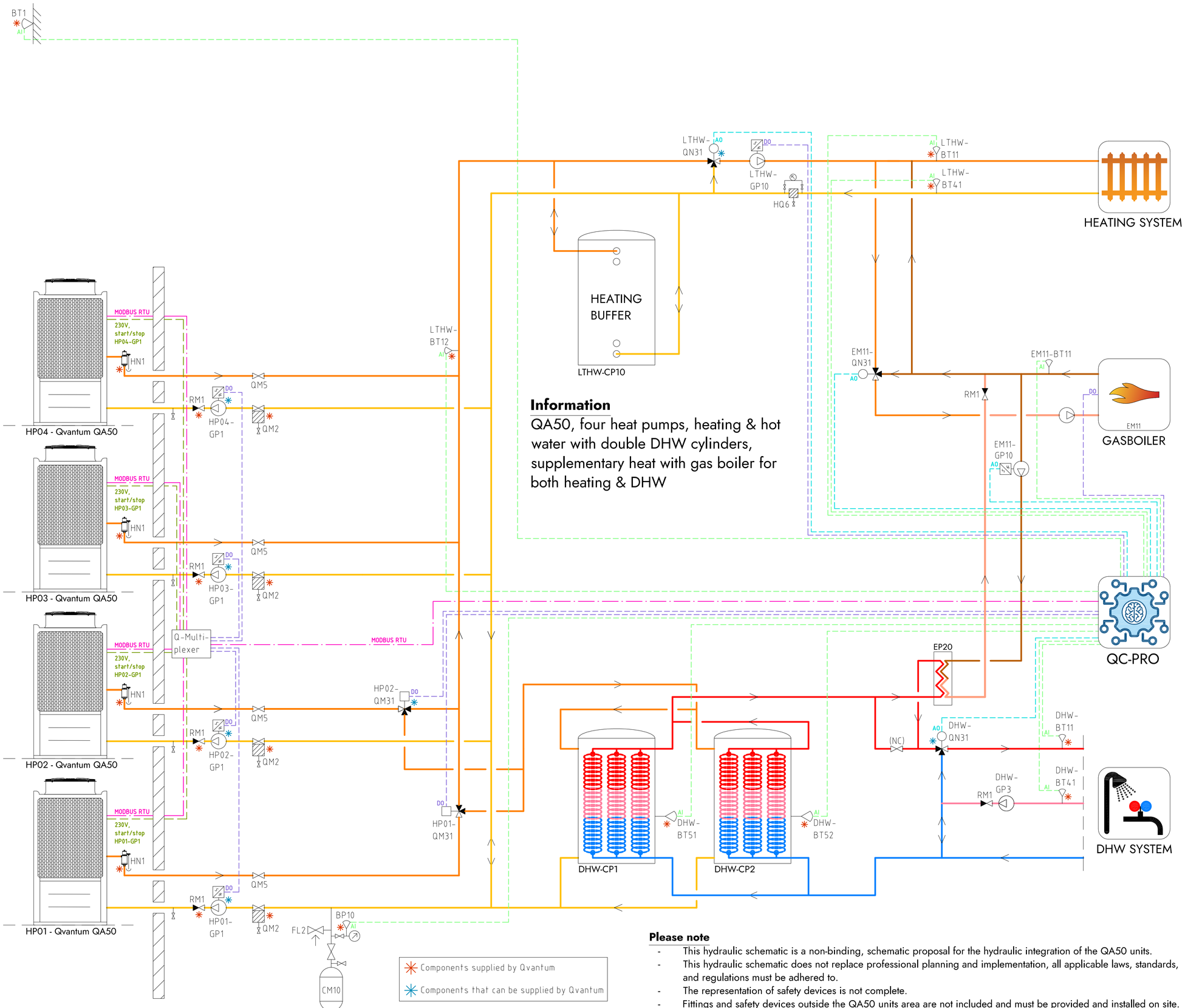
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, supplementary heat with gas boiler for both heating & DHW

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-BT11 | Flow temperature, Gas boiler |
| EM11-GP10 | Circulation pump, Gas Boiler (DHW) |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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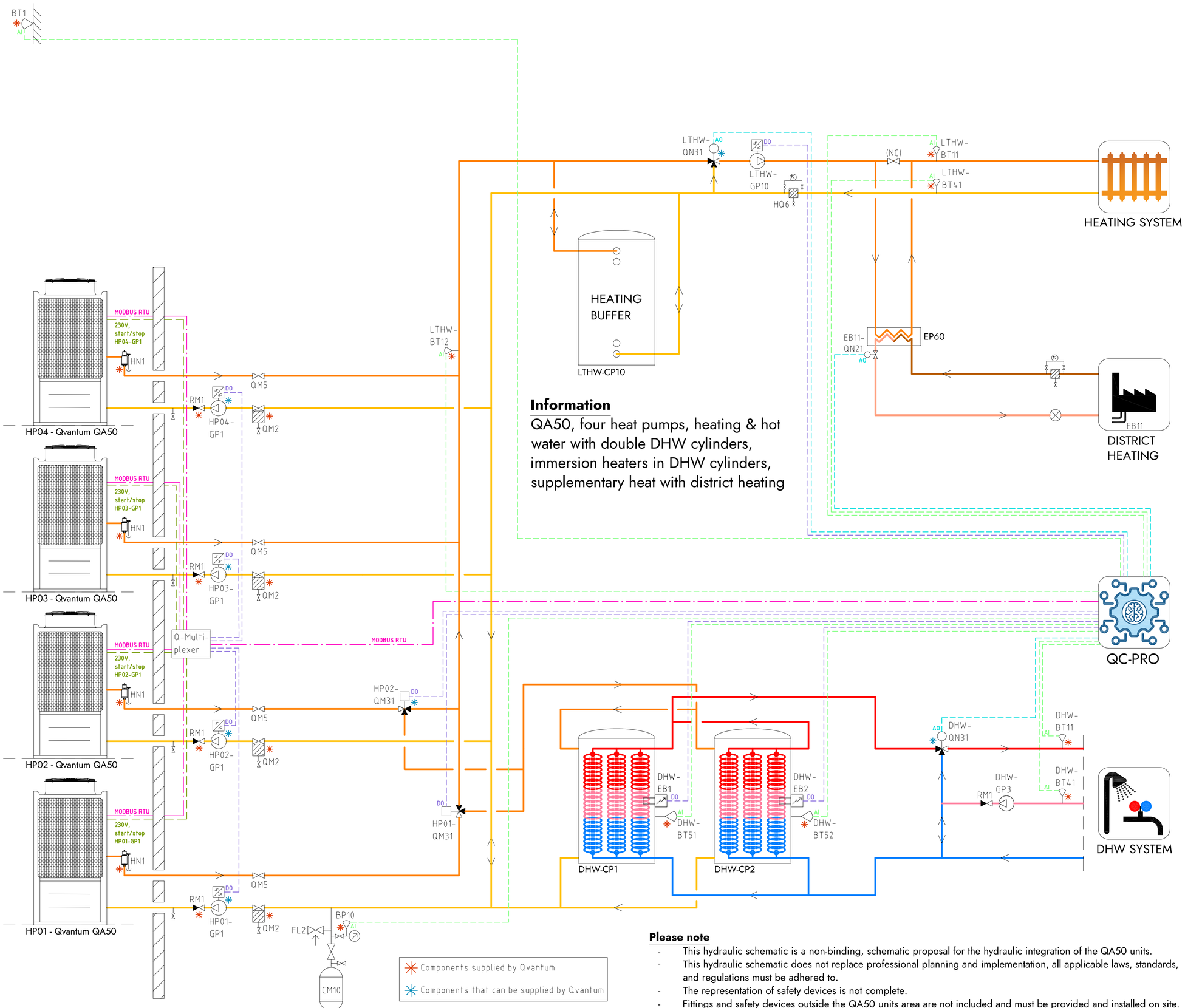
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, immersion heaters in DHW cylinders, supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

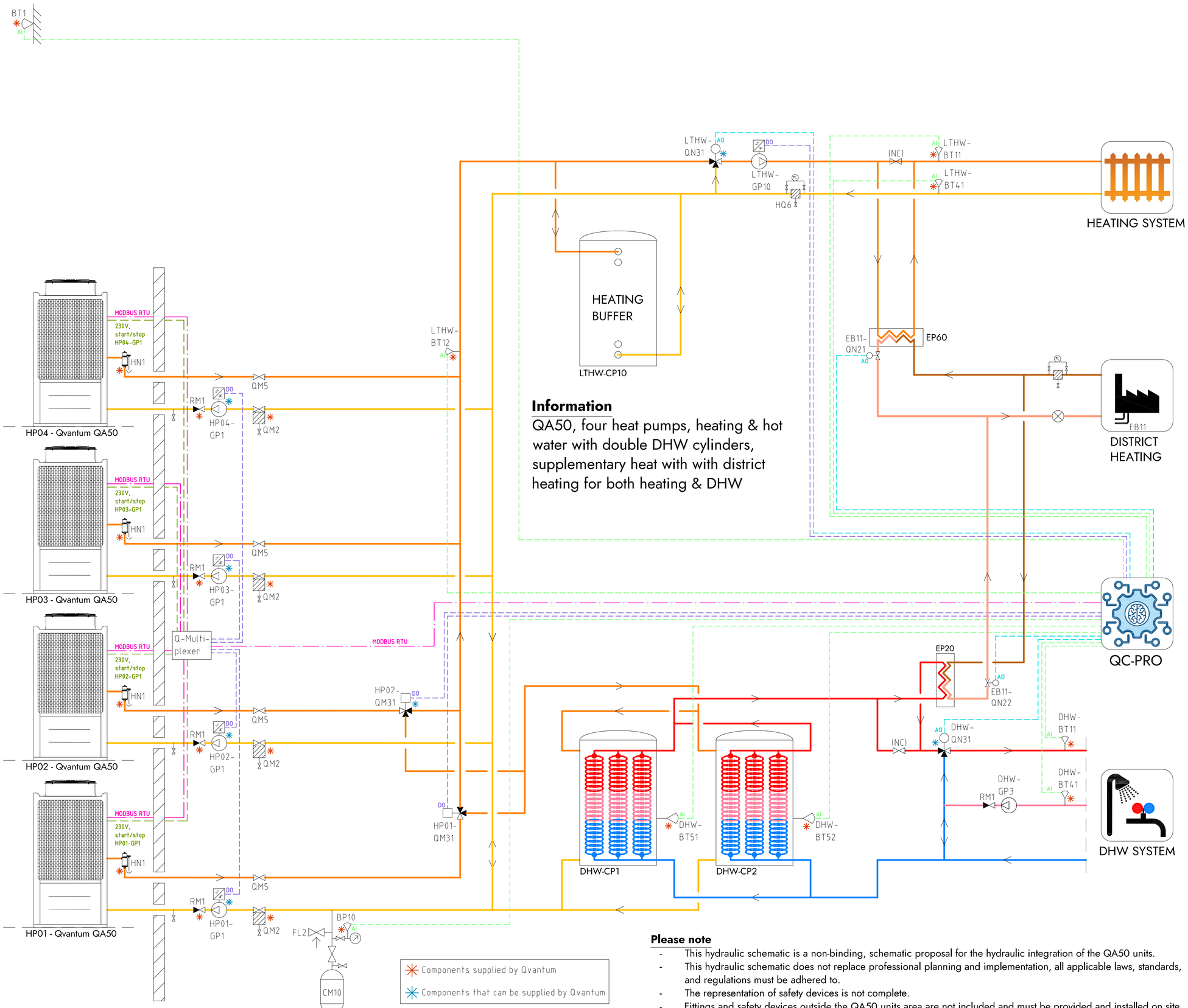
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, supplementary heat with with district heating for both heating & DHW

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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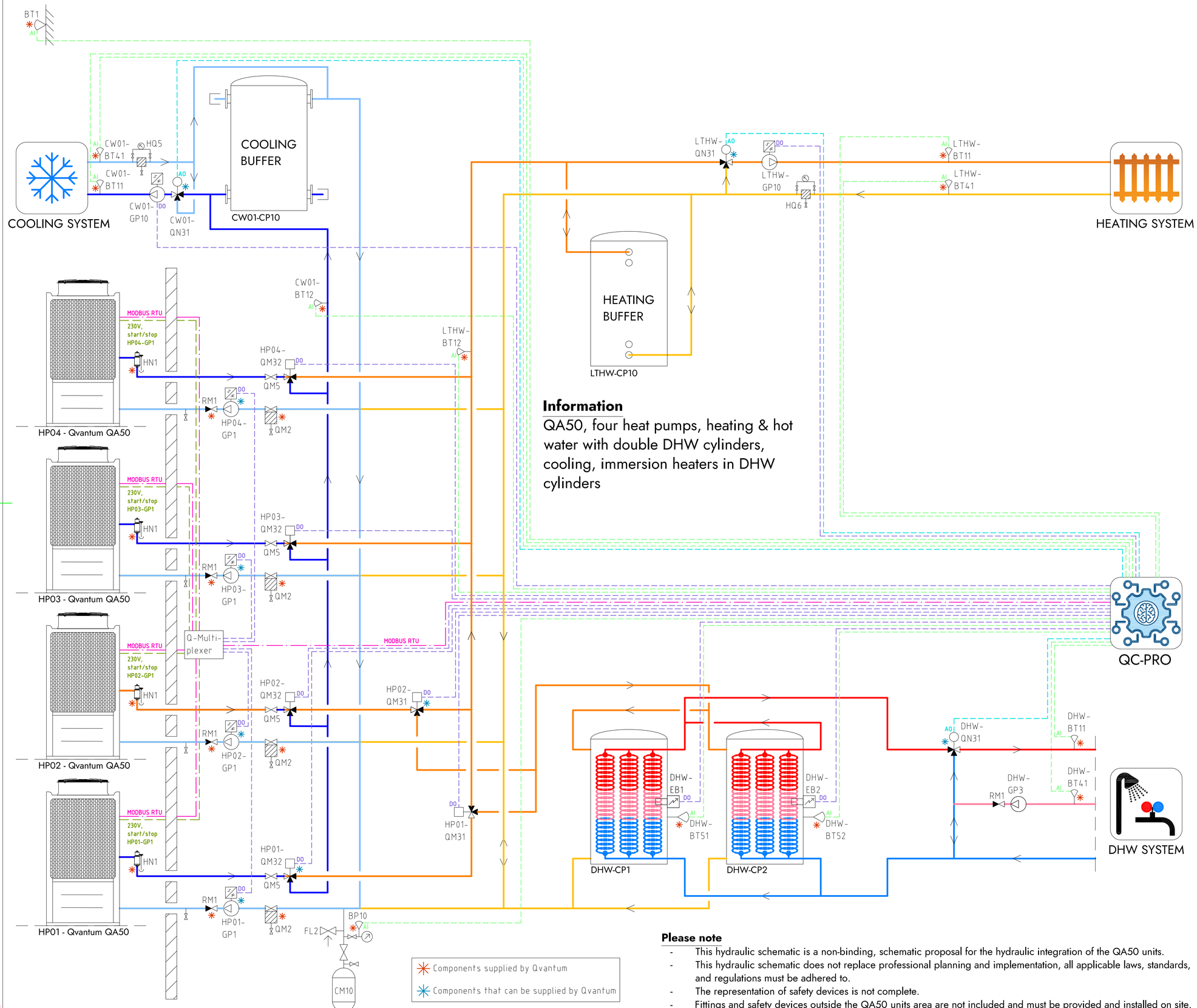
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

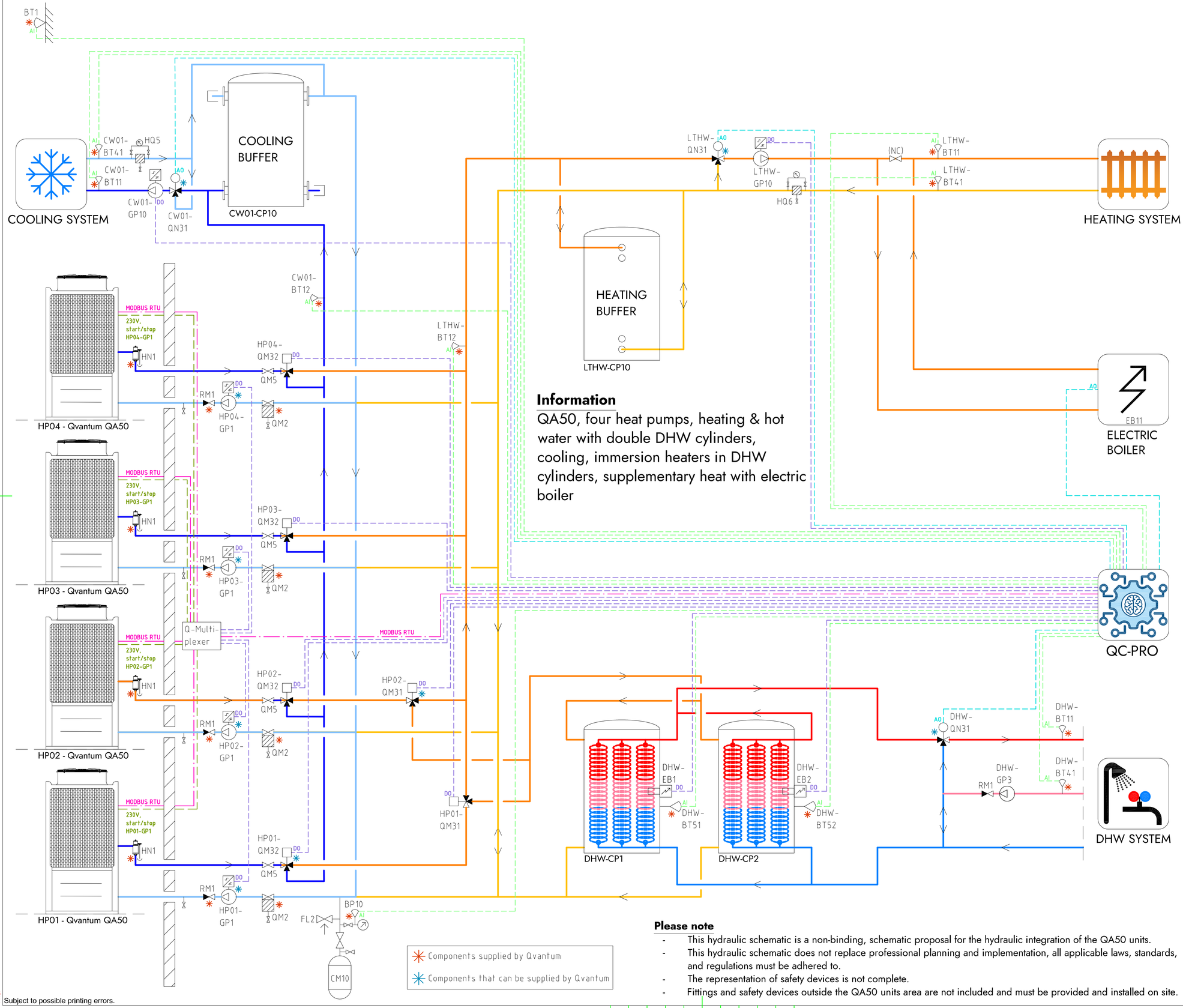
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with electric boiler

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- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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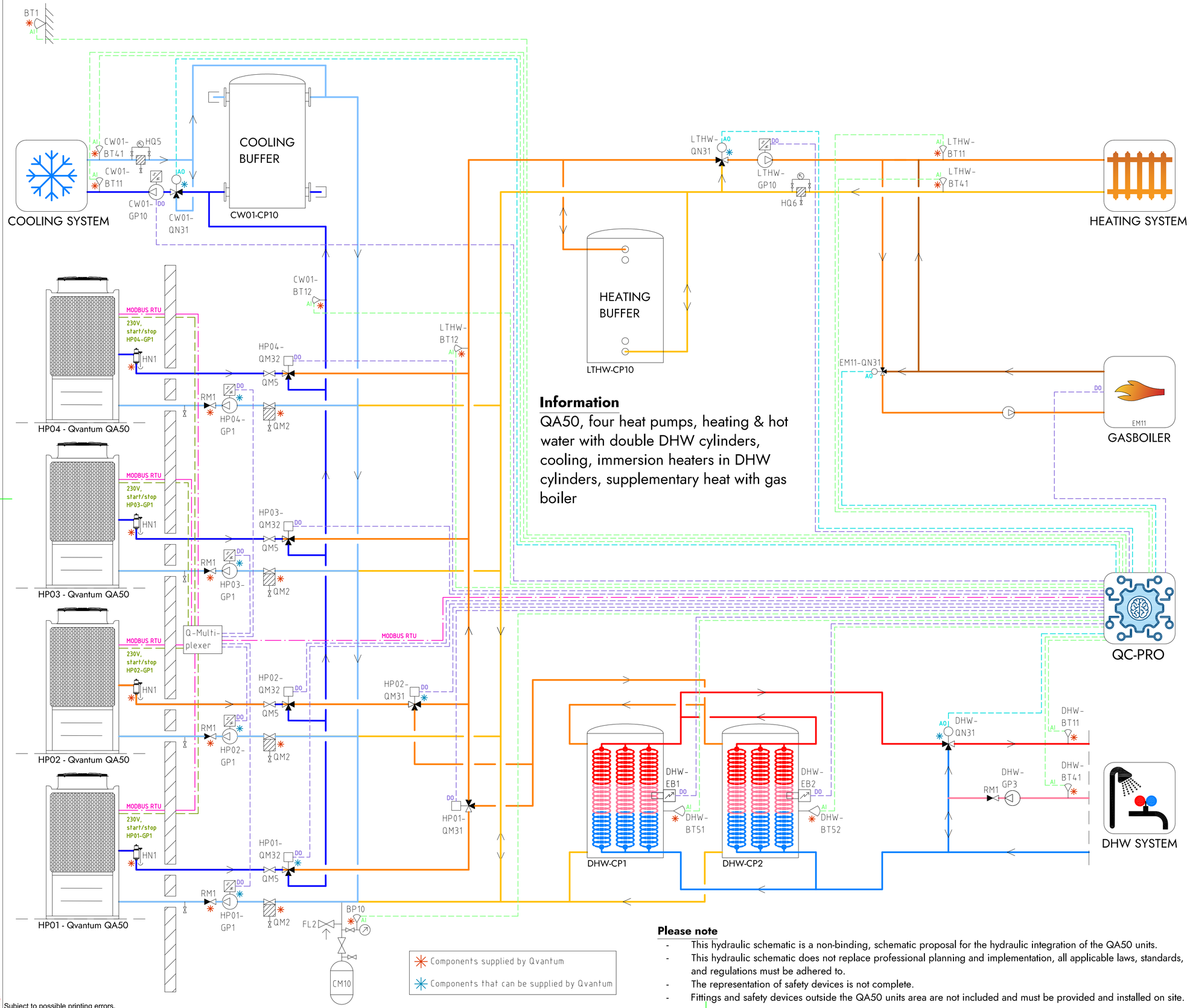
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-427 | 138 |

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PLOT: 2025-09-08 22:46 G:\QVANTUM\01 INTERNT\05 RITNINGAR\DOCKNINGSPRINCIPER\QVANTUM QA\RIT\QA50 - COMMERCIAL, FOUR HEAT PUMPS_2026-09-01\DO TO GP1.DWG JONAS

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with gas boiler

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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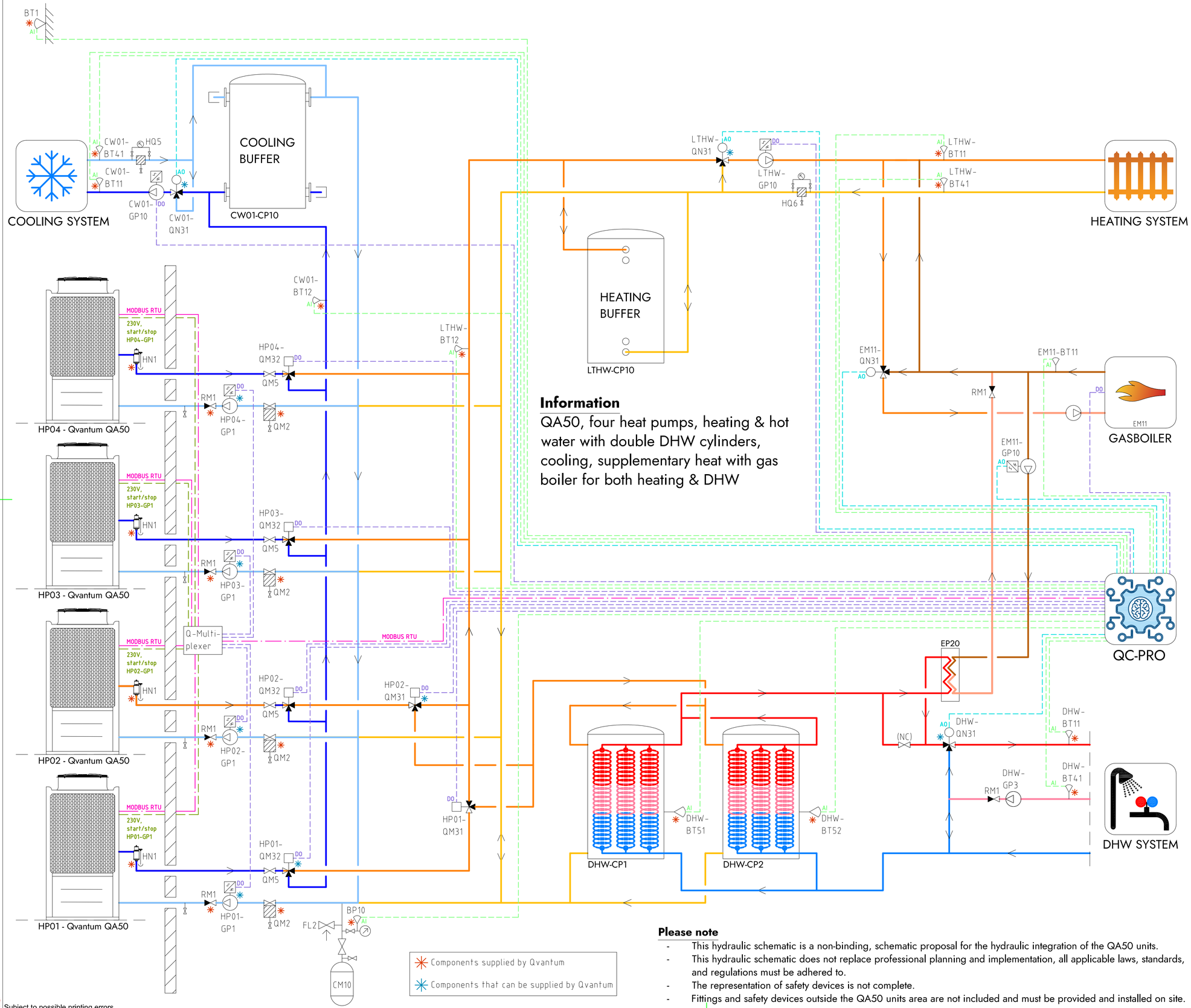
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

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| JE | QA50-50-8-428 | 139 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, cooling, supplementary heat with gas boiler for both heating & DHW

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-BT11 | Flow temperature, Gas boiler |
| EM11-GP10 | Circulation pump, Gas Boiler (DHW) |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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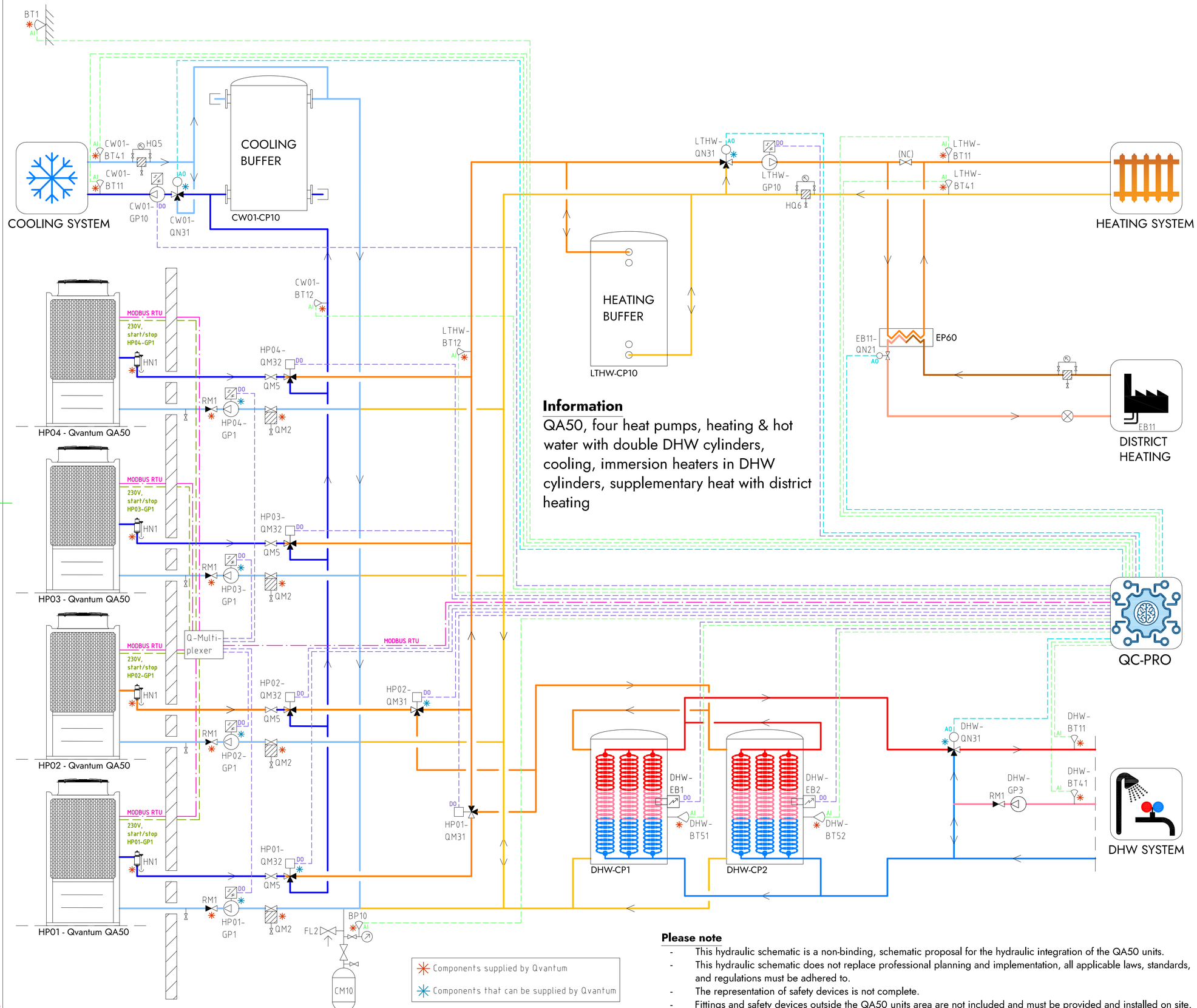
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, cooling, immersion heaters in DHW cylinders, supplementary heat with district heating

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-EB1 | Immersion heater |
| DHW-EB2 | Immersion heater |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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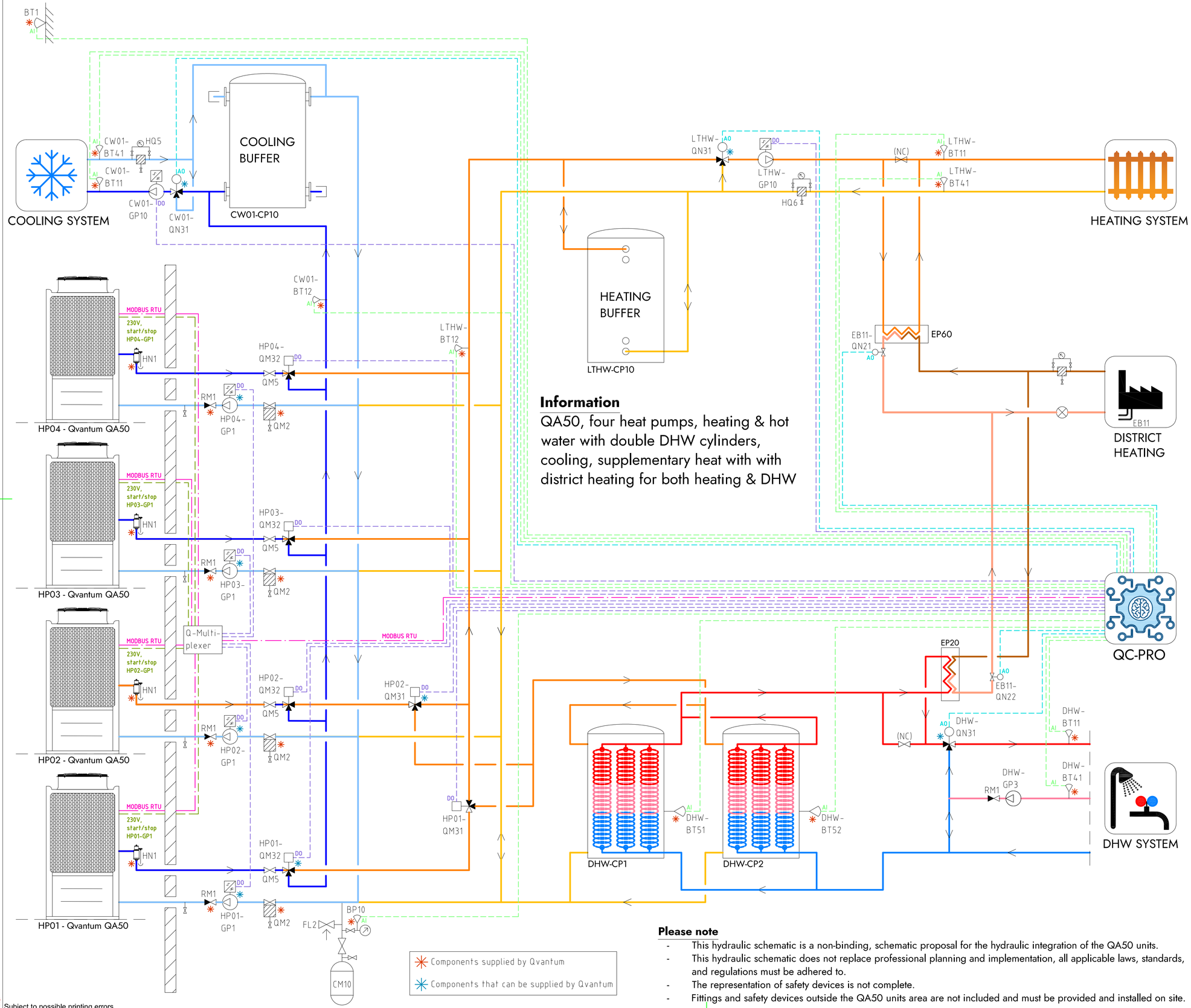
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HEAT PUMPS FOR SUSTAINABLE CITIES

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| JE | QA50-50-8-430 | 141 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, heating & hot water with double DHW cylinders, cooling, supplementary heat with with district heating for both heating & DHW

## Please note

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- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ5 | Strainer, cooling system |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP01-QM31 | Switching valve (LTHW/DHW) |
| HP02-QM31 | Switching valve (LTHW/DHW) |
| HP01-QM32 | Switching valve (LTHW/CW01) |
| HP02-QM32 | Switching valve (LTHW/CW01) |
| HP03-QM32 | Switching valve (LTHW/CW01) |
| HP04-QM32 | Switching valve (LTHW/CW01) |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| EB11-QN22 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

### SYSTEM CW01

| | |
|---|---|
| CW01-BT11 | Flow temperature, main cooling system |
| CW01-BT12 | Flow temperature, primary cooling system |
| CW01-BT41 | Return temperature, main cooling system |
| CW01-CP10 | Cooling buffer |
| CW01-GP10 | Circulation pump, main cooling system |
| CW01-QN31 | Mixing valve, main cooling system |

### SYSTEM DHW

| | |
|---|---|
| DHW-BT11 | Flow temperature, DHW system |
| DHW-BT41 | Return temperature, DHW system |
| DHW-BT51 | Tank temperature sensor |
| DHW-BT52 | Tank temperature sensor |
| DHW-CP1 | DHW Cylinder |
| DHW-CP2 | DHW Cylinder |
| DHW-GP3 | Circulation pump, DHW circulation |
| DHW-QN31 | Mixing valve, DHW system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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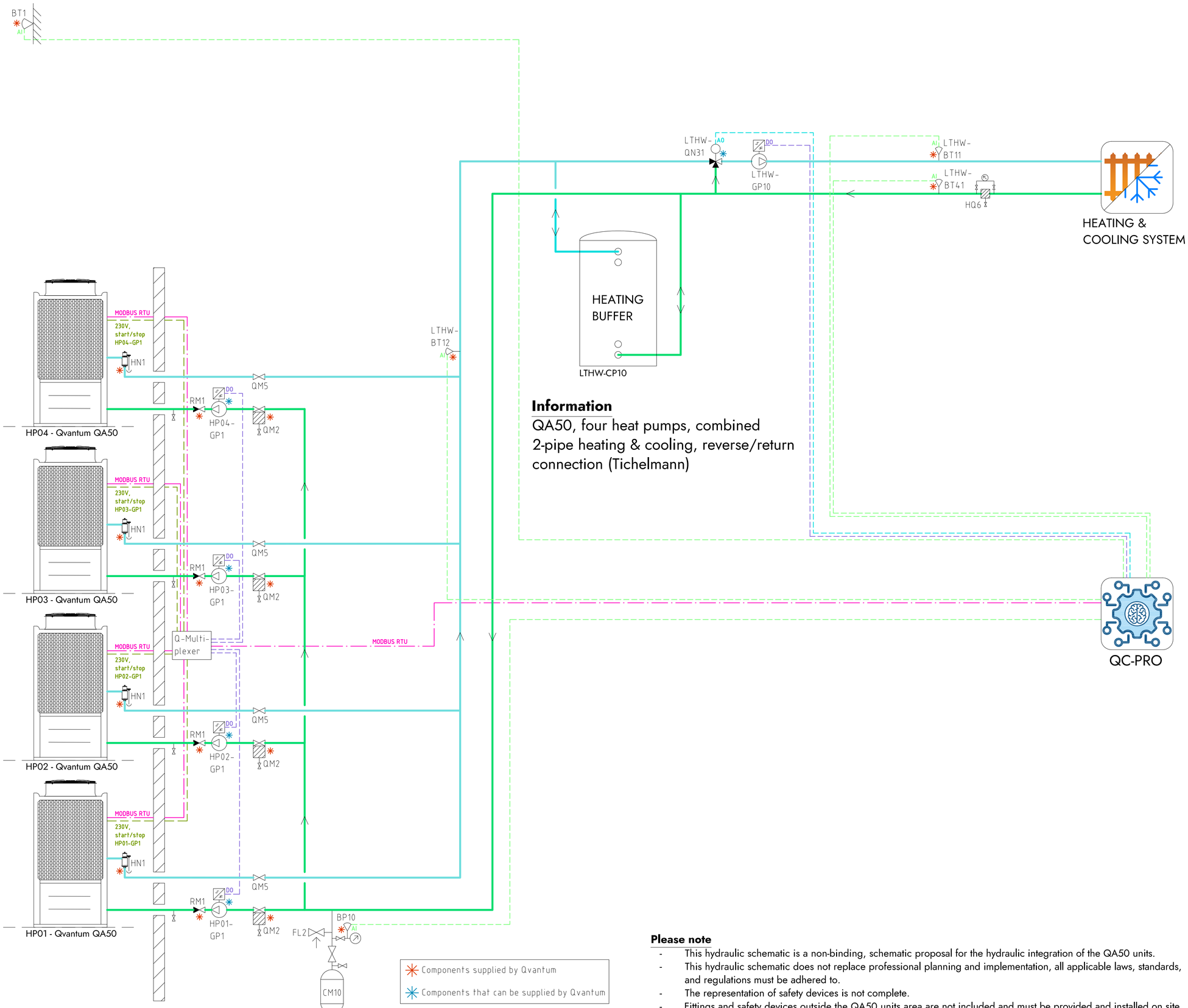
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HEAT PUMPS FOR SUSTAINABLE CITIES

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, combined
2-pipe heating & cooling, reverse/return
connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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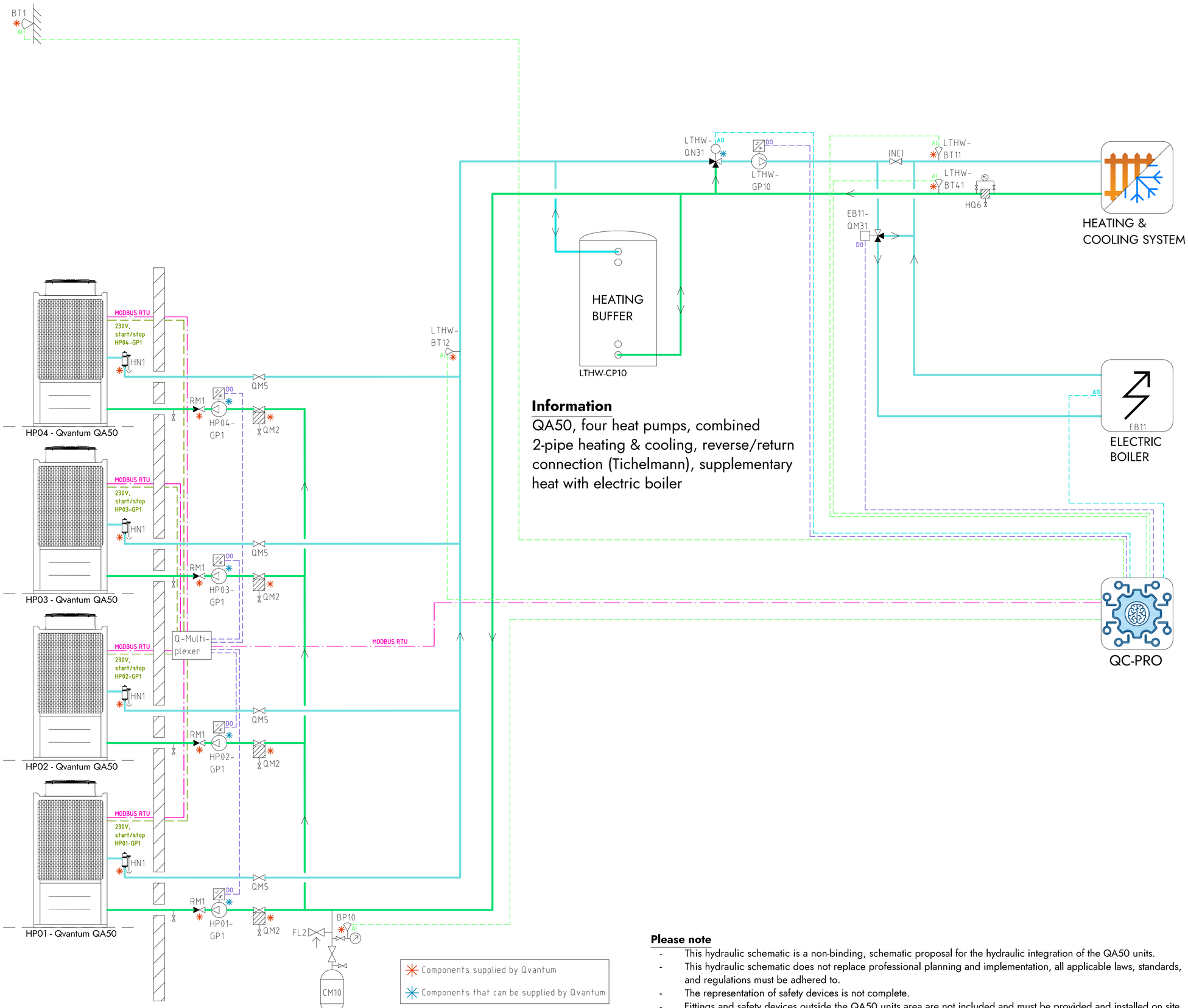
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, four heat pumps, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main system |
| LTHW-BT12 | Flow temperature, primary system |
| LTHW-BT41 | Return temperature, main system |
| LTHW-GP10 | Circulation pump, main system |
| LTHW-QN31 | Mixing valve, main system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

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HEAT PUMPS FOR SUSTAINABLE CITIES

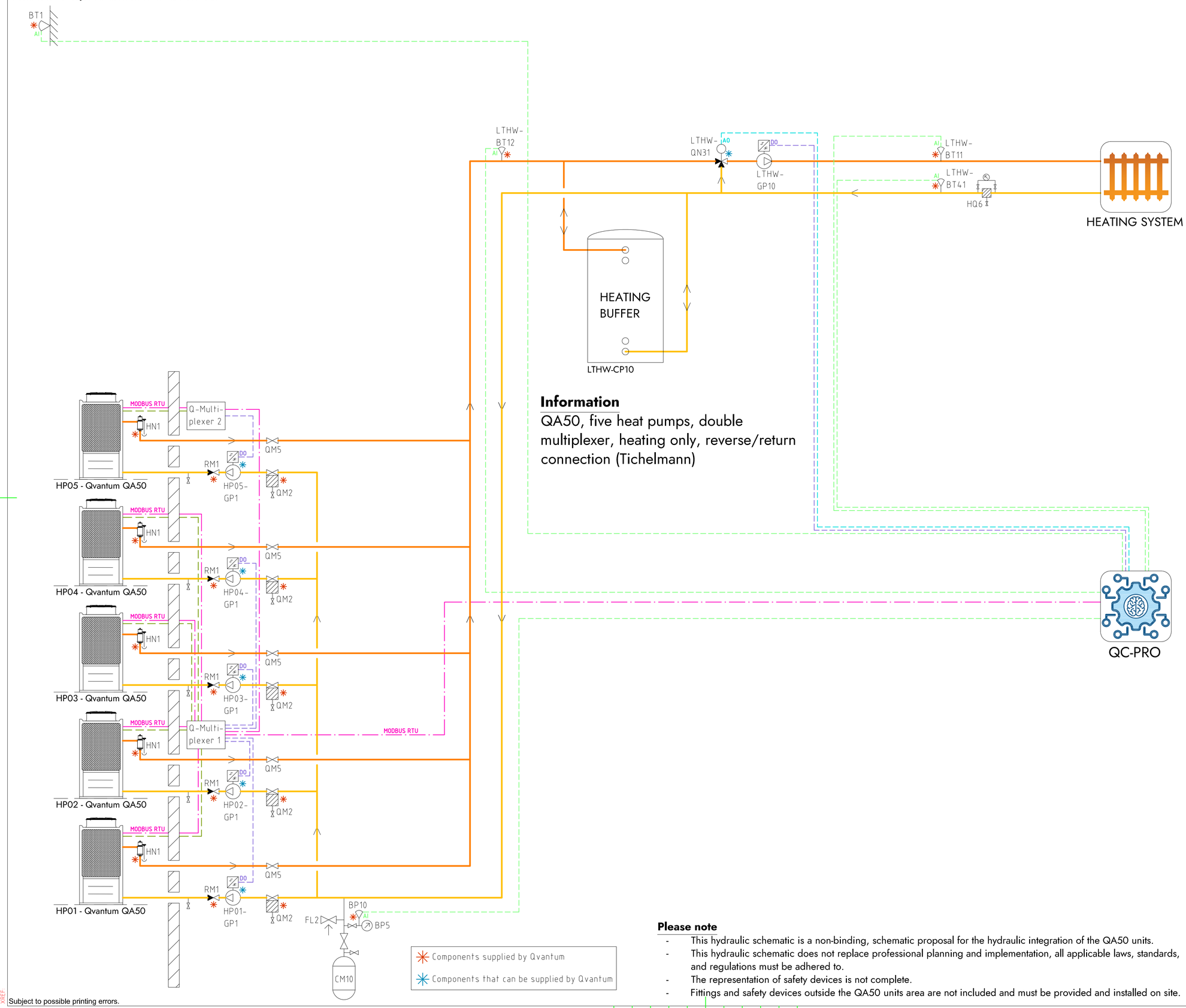
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with five heat pumps

Subject to possible printing errors.

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, five heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

Components supplied by Qvantum

Components that can be supplied by Qvantum

## Please note

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- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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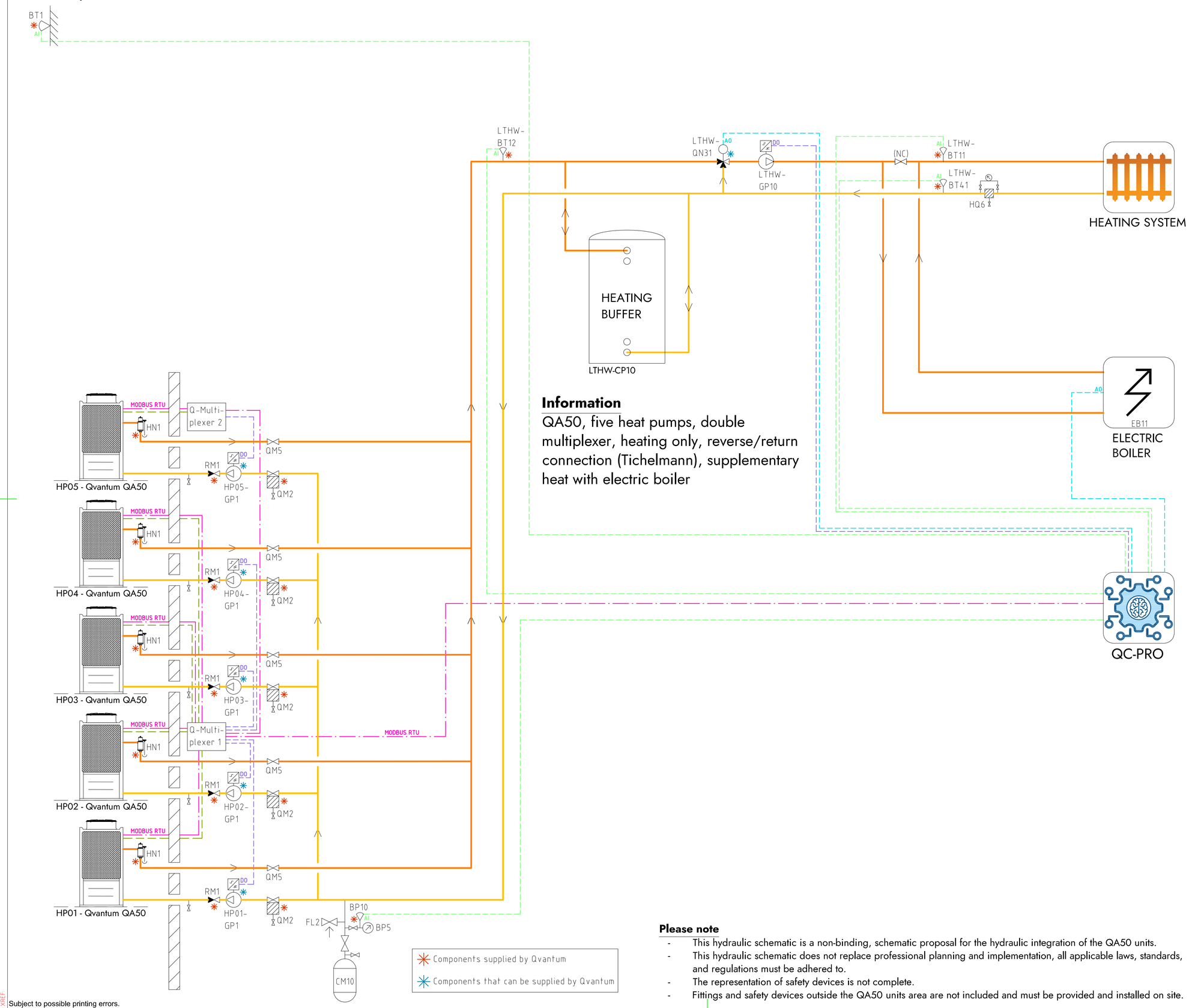
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| JE | QA50-50-8-500 | 146 |

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LAGER: SB11

PLOT: 2026-10-13 16:08 G:\QVANTUM\01 INTERNT\05 RITNINGAR\02 KONSTRUKTIONSPRINCIPER\QVANTUM QA\RITNING\QA50 - COMMERCIAL, FIVE HEAT PUMPS COMBINED_2026-10-12 (00 TO GP1).DWG JONAS

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, five heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

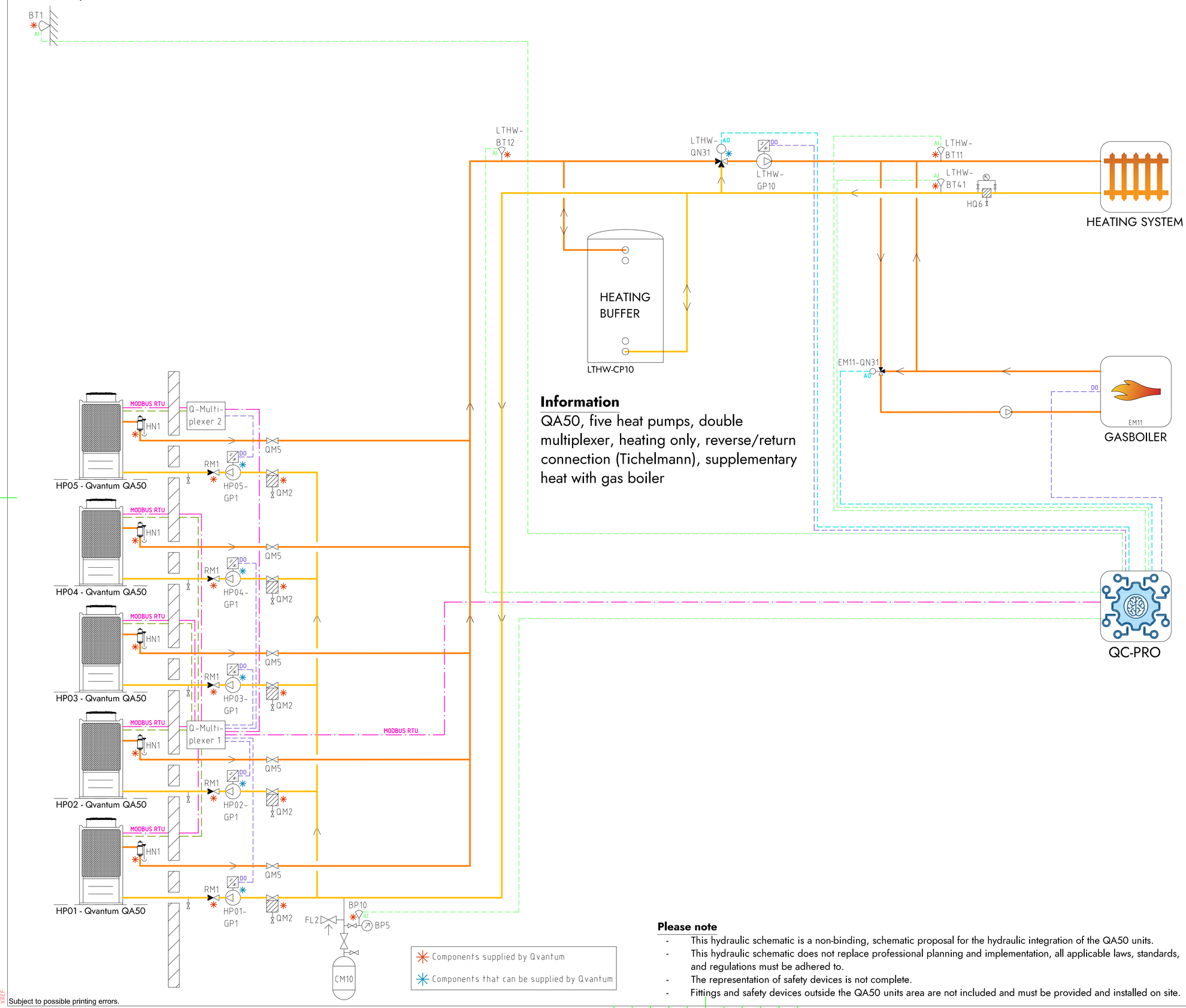
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| JE | QA50-50-8-501 | 147 |

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XREF:
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, five heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

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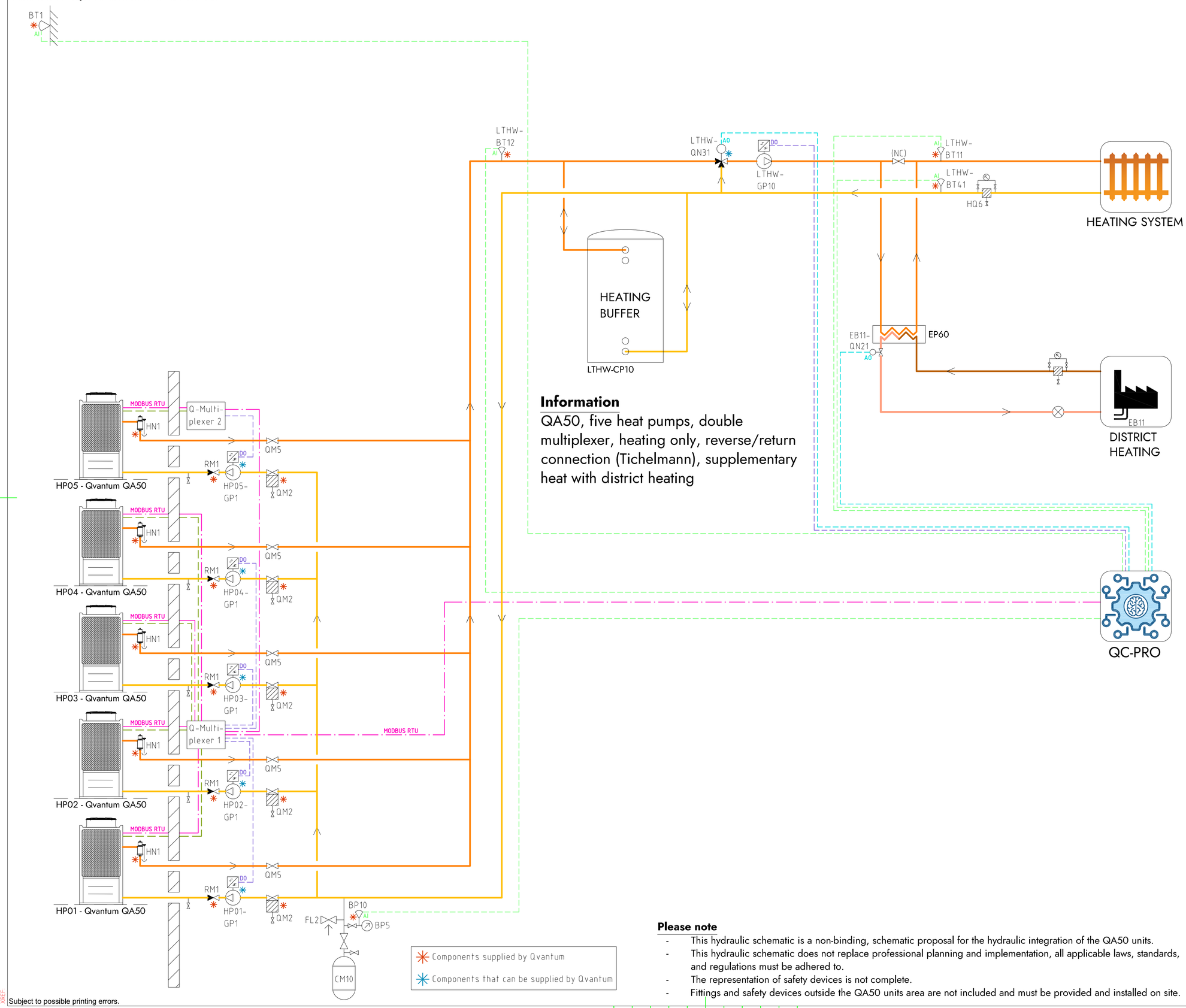
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, five heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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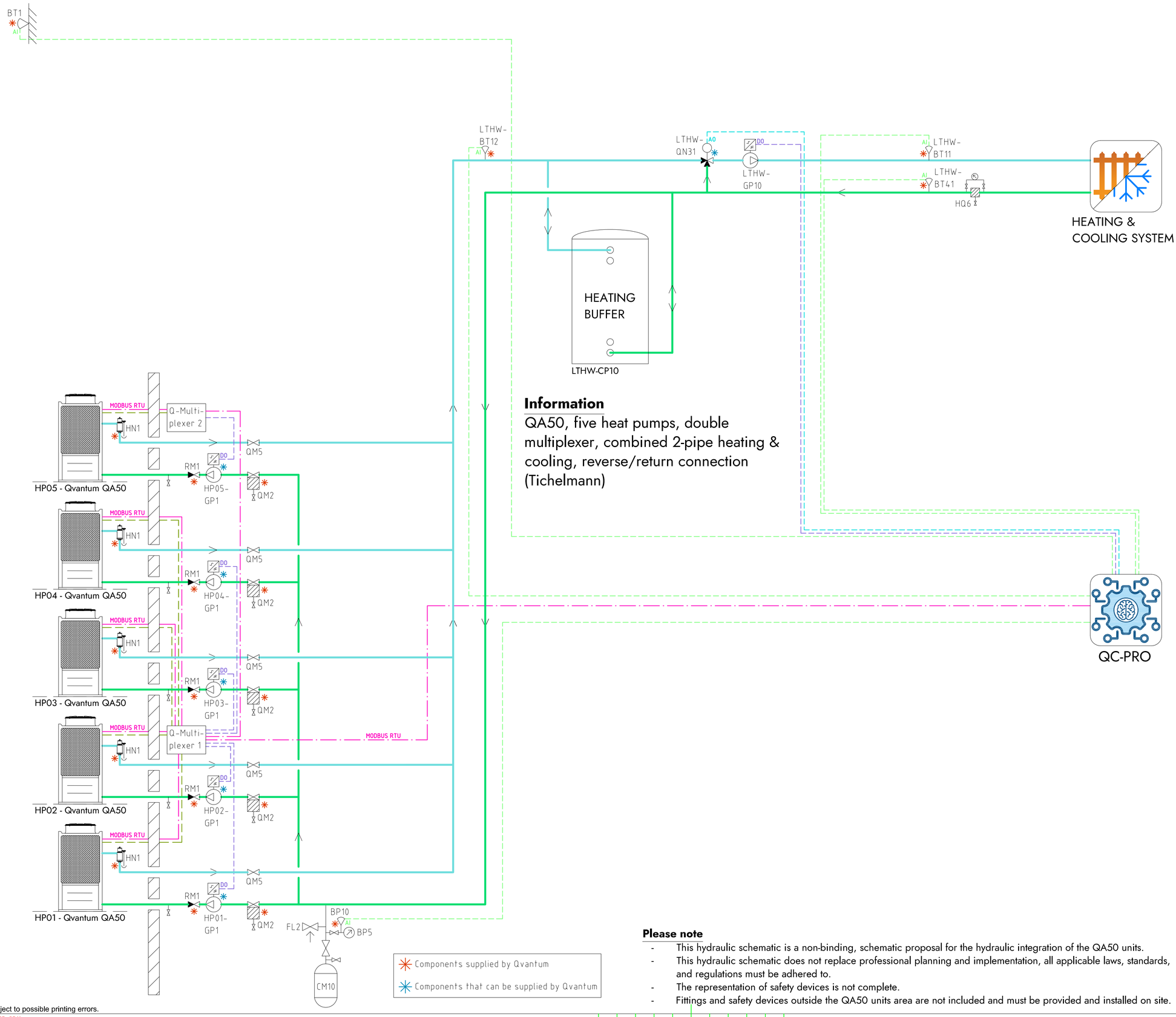
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HEAT PUMPS FOR SUSTAINABLE CITIES

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| JE | QA50-50-8-503 | 149 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, five heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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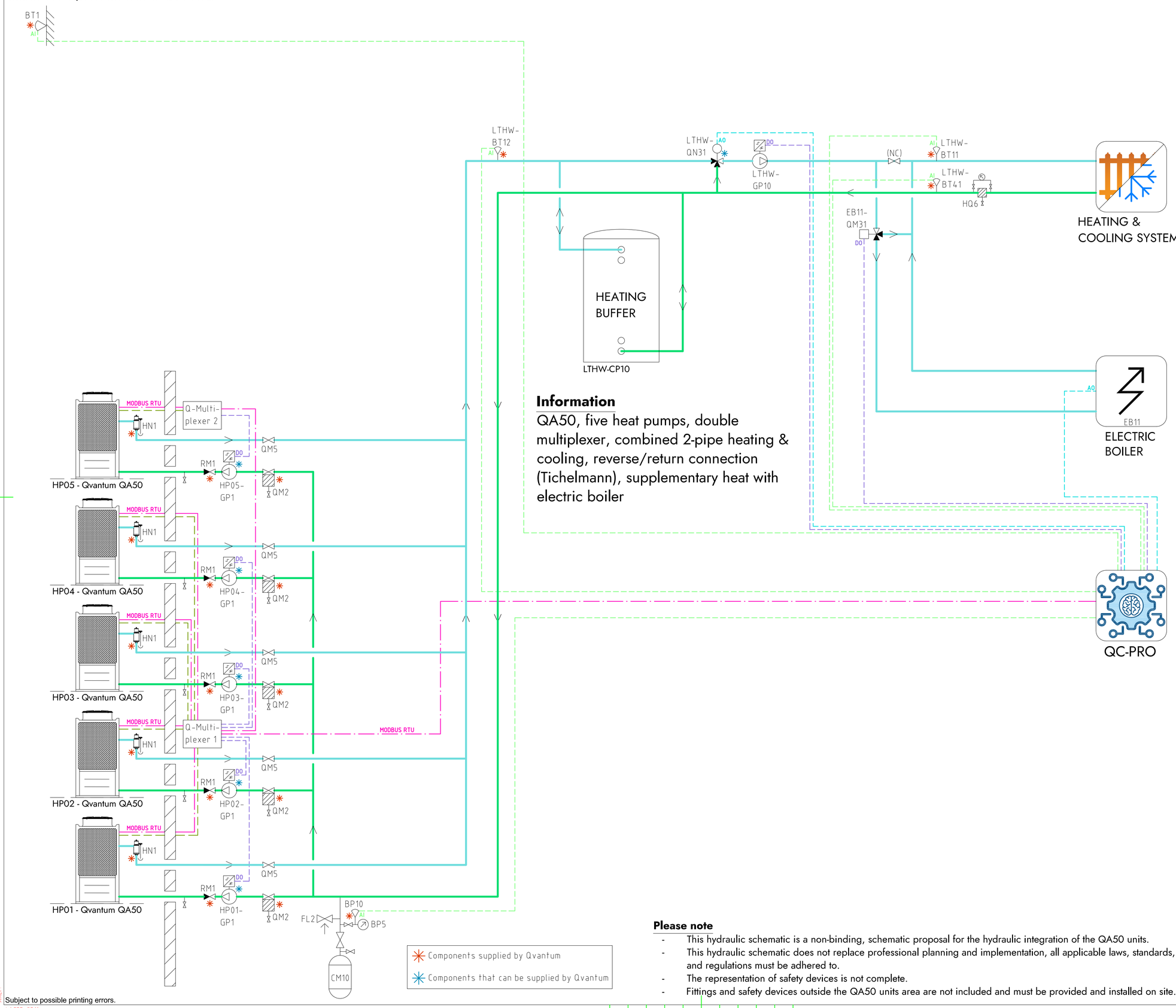
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, five heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

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HEAT PUMPS FOR SUSTAINABLE CITIES

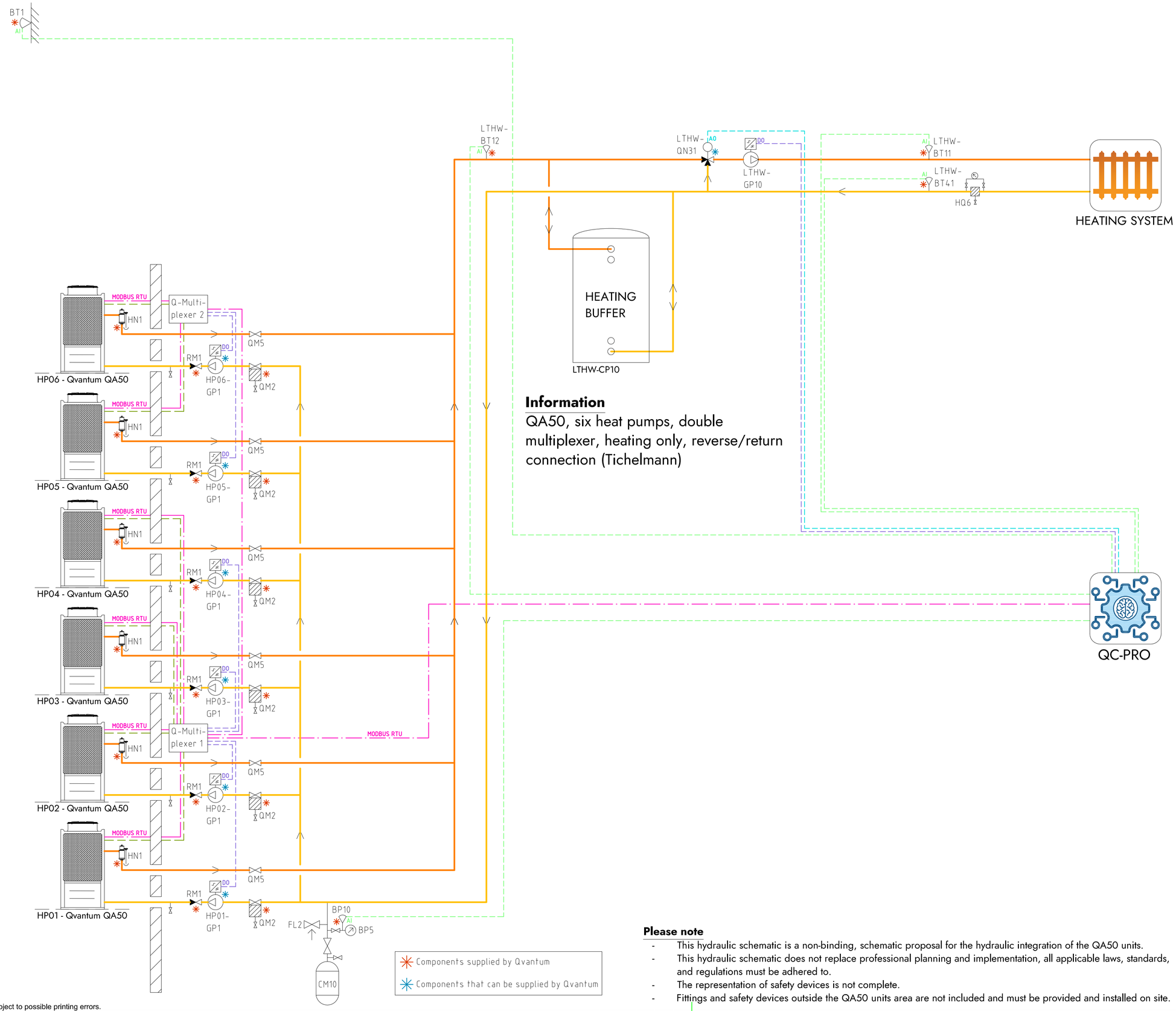
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with six heat pumps

Subject to possible printing errors.

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, six heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

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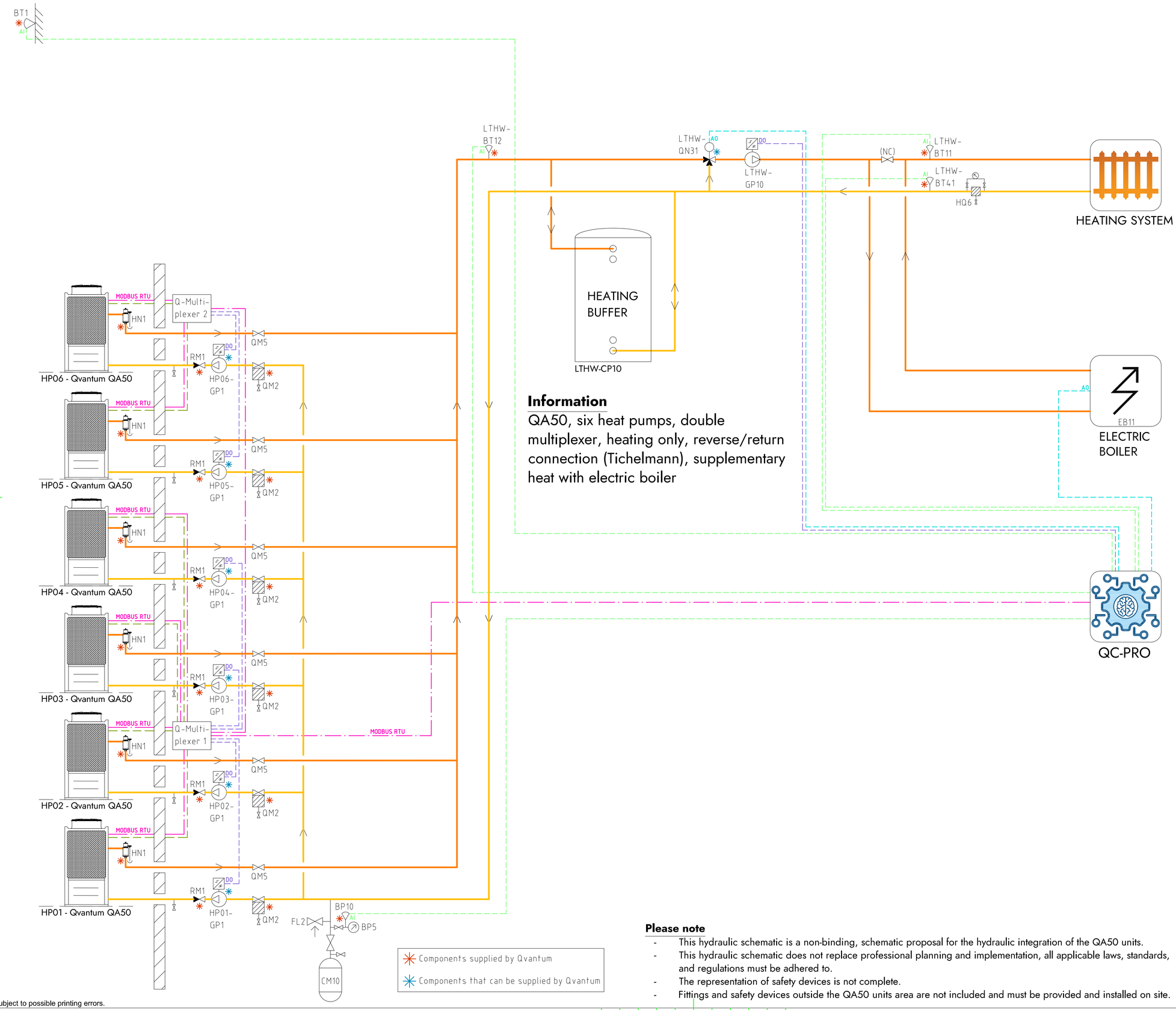
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, six heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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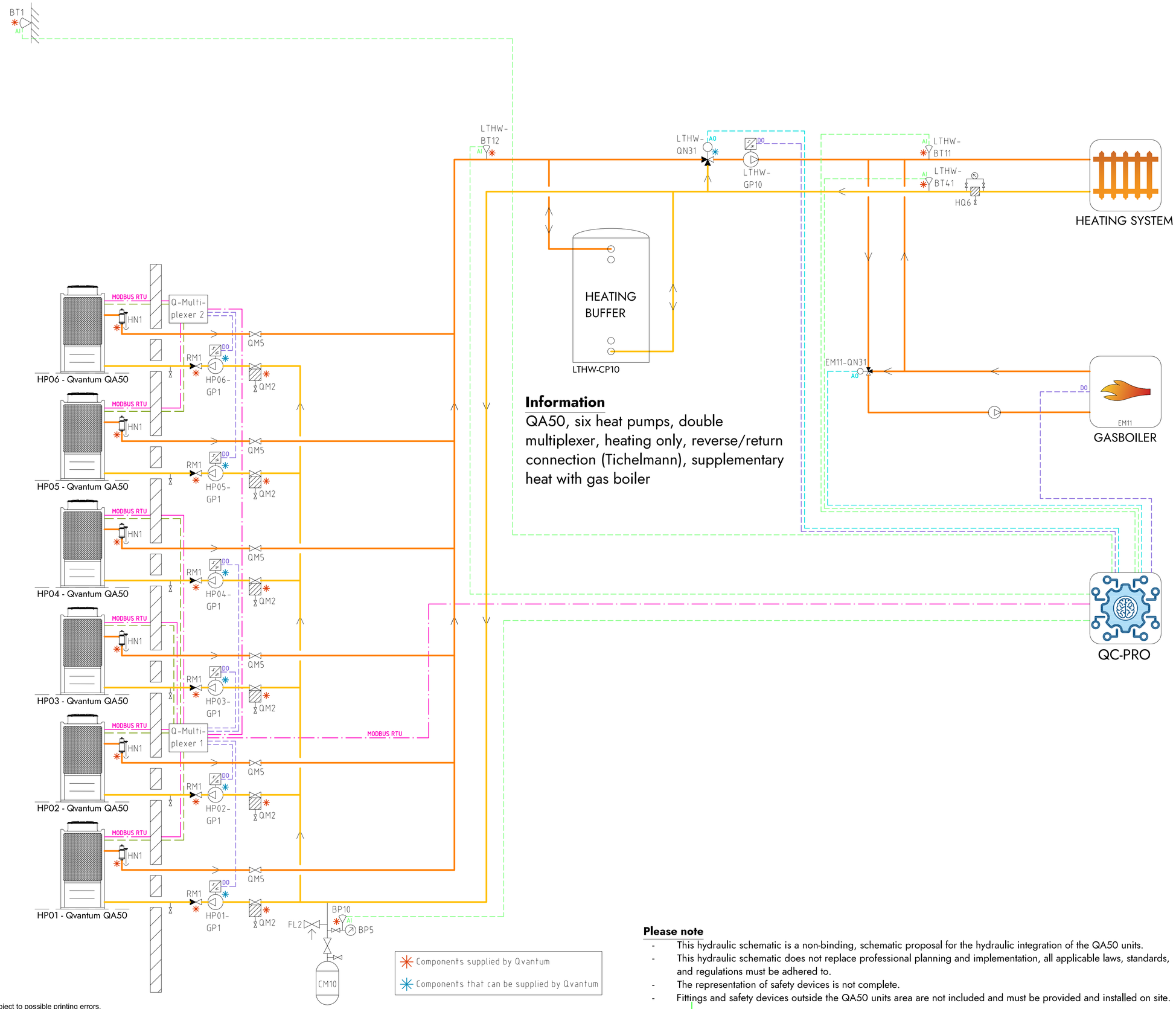
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

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LAGER: SB11
XREF:
PLO 2026-10-13 16:12 G:\QVANTUM\01 INTERNT\05 RITNINGAR\DOCKNINGSPRINCIPER\QVANTUM QA\MITT\QA50 - COMMERCIAL, SIX HEAT PUMPS COMBINED_2026-10-12.DO TO GP1.DWG JOM

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, six heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

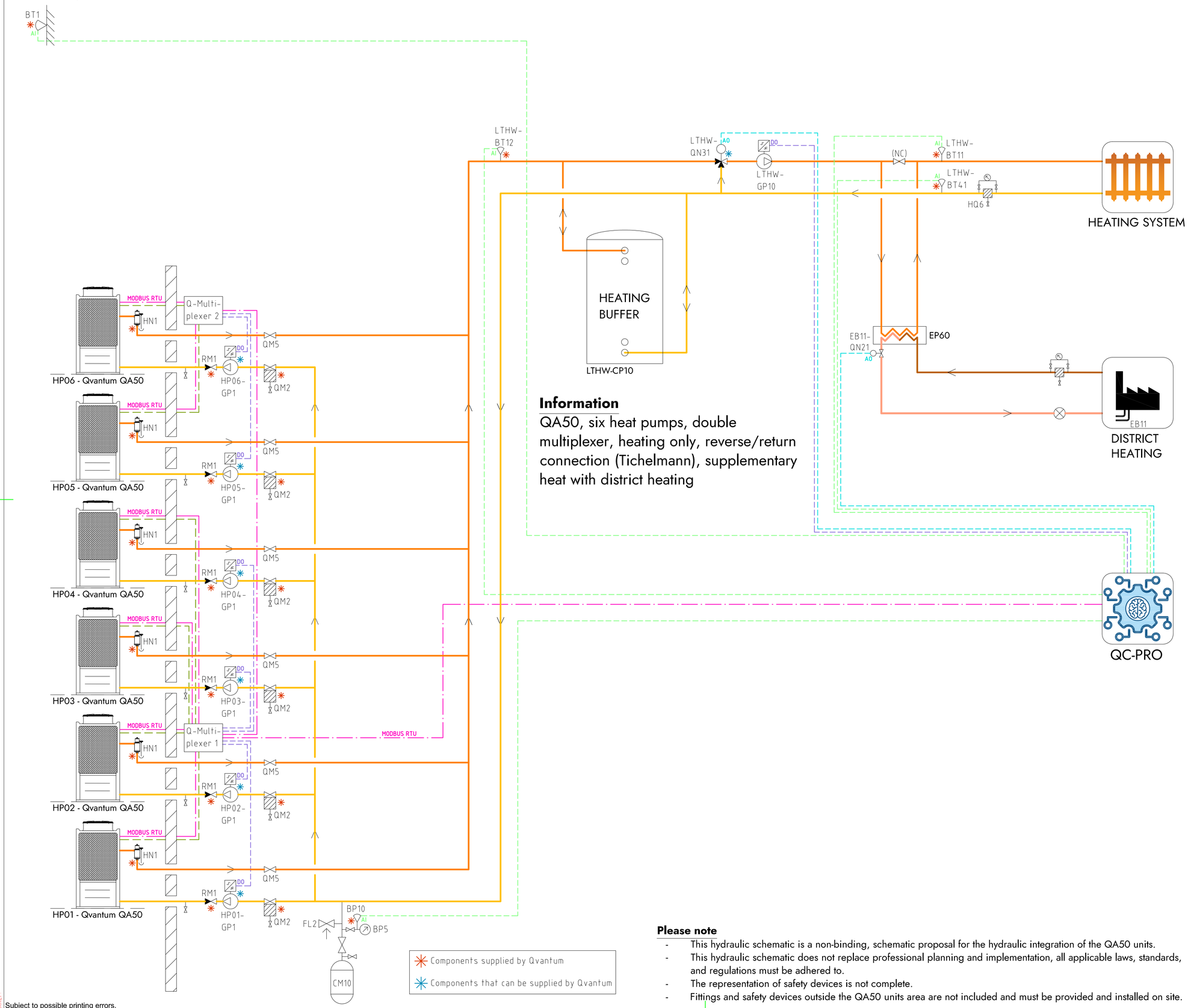
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XREF:
LAGER: SB11

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, six heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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- The representation of safety devices is not complete.
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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

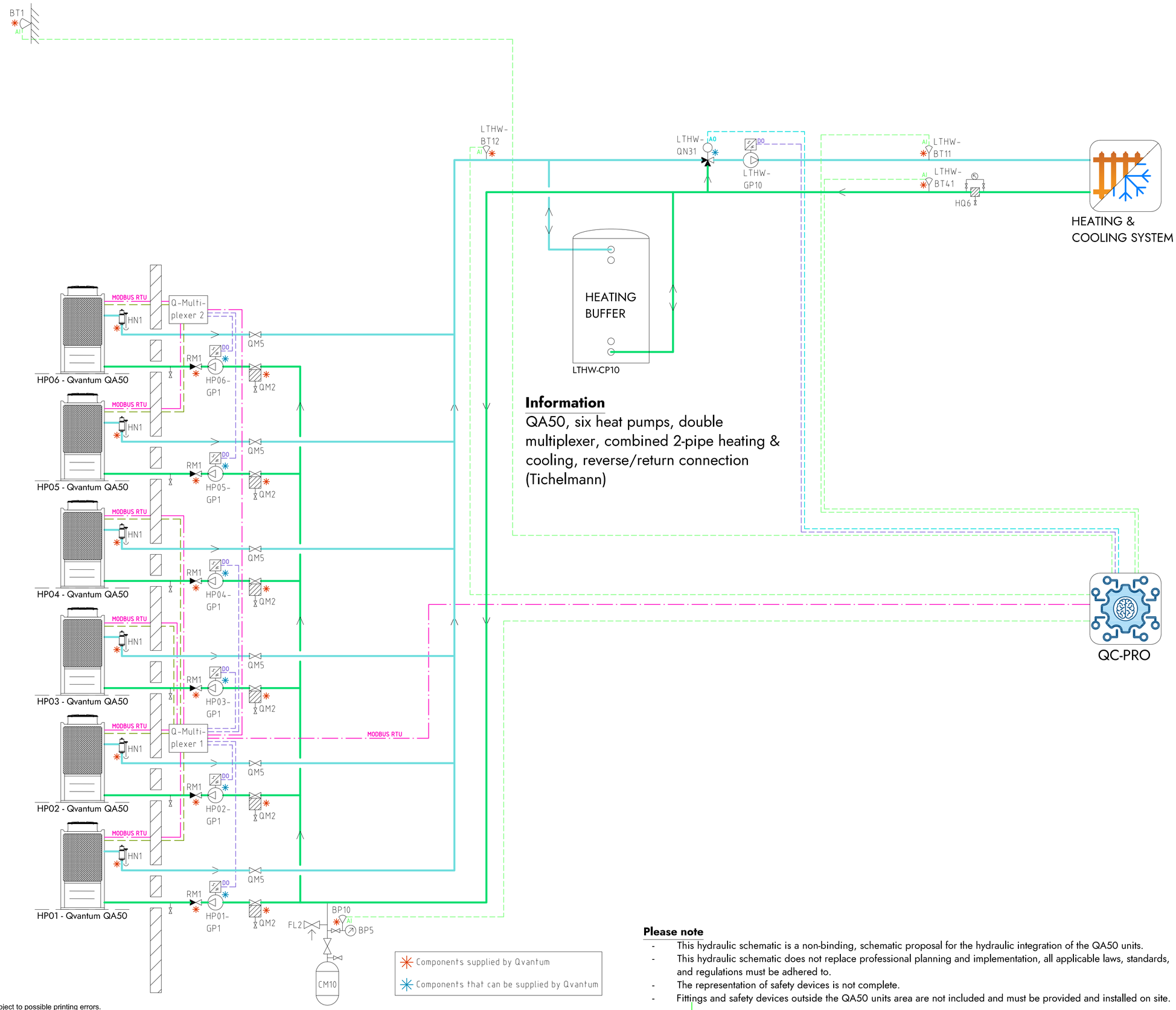
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| JE | QA50-50-8-603 | 156 |

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XREF:
LAGER: SB11

PLOT: 2026-10-13 16:13 G:\QVANTUM\INTERN\VVS RITNINGAR\DOCKNINGSPRINCIPER\QVANTUM QA\RIT\QA50 - COMMERCIAL, SIX HEAT PUMPS COMBINED_2026-10-12 (DO TO GP1DWG

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, six heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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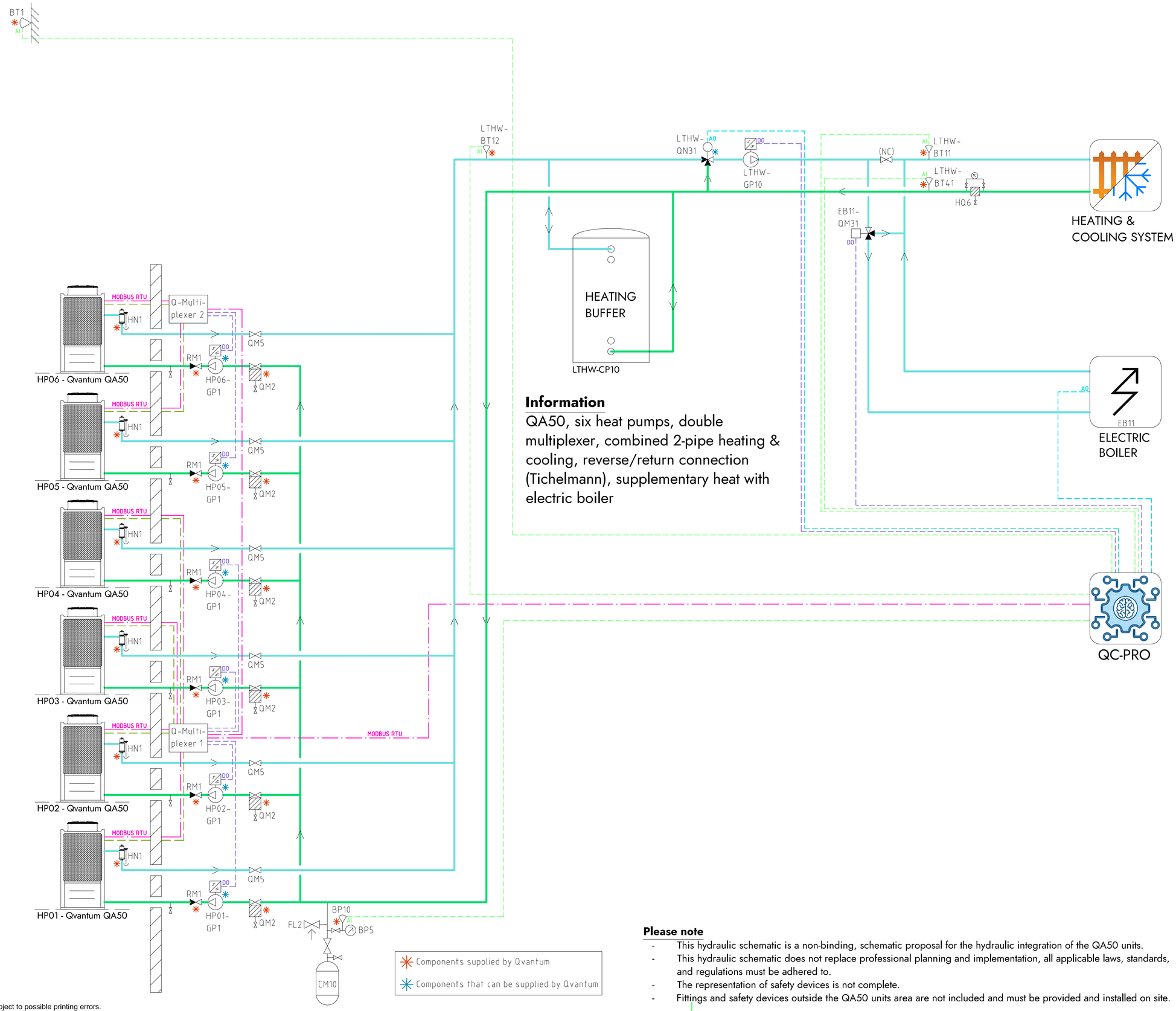
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HEAT PUMPS FOR SUSTAINABLE CITIES

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| JE | QA50-50-8-6000 | 157 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, six heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

**Please note**

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HEAT PUMPS FOR SUSTAINABLE CITIES

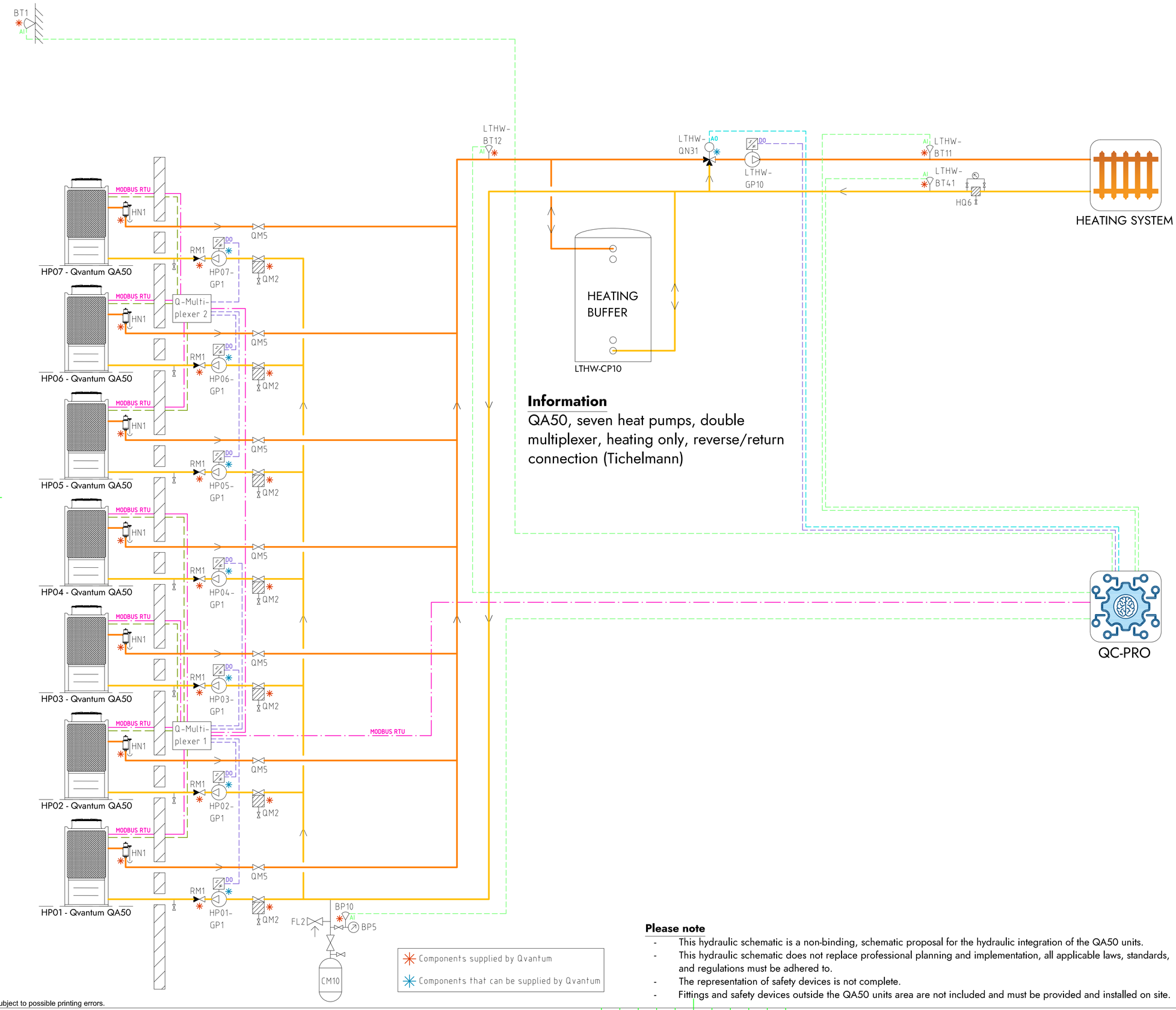
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with seven heat pumps

Subject to possible printing errors.

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, seven heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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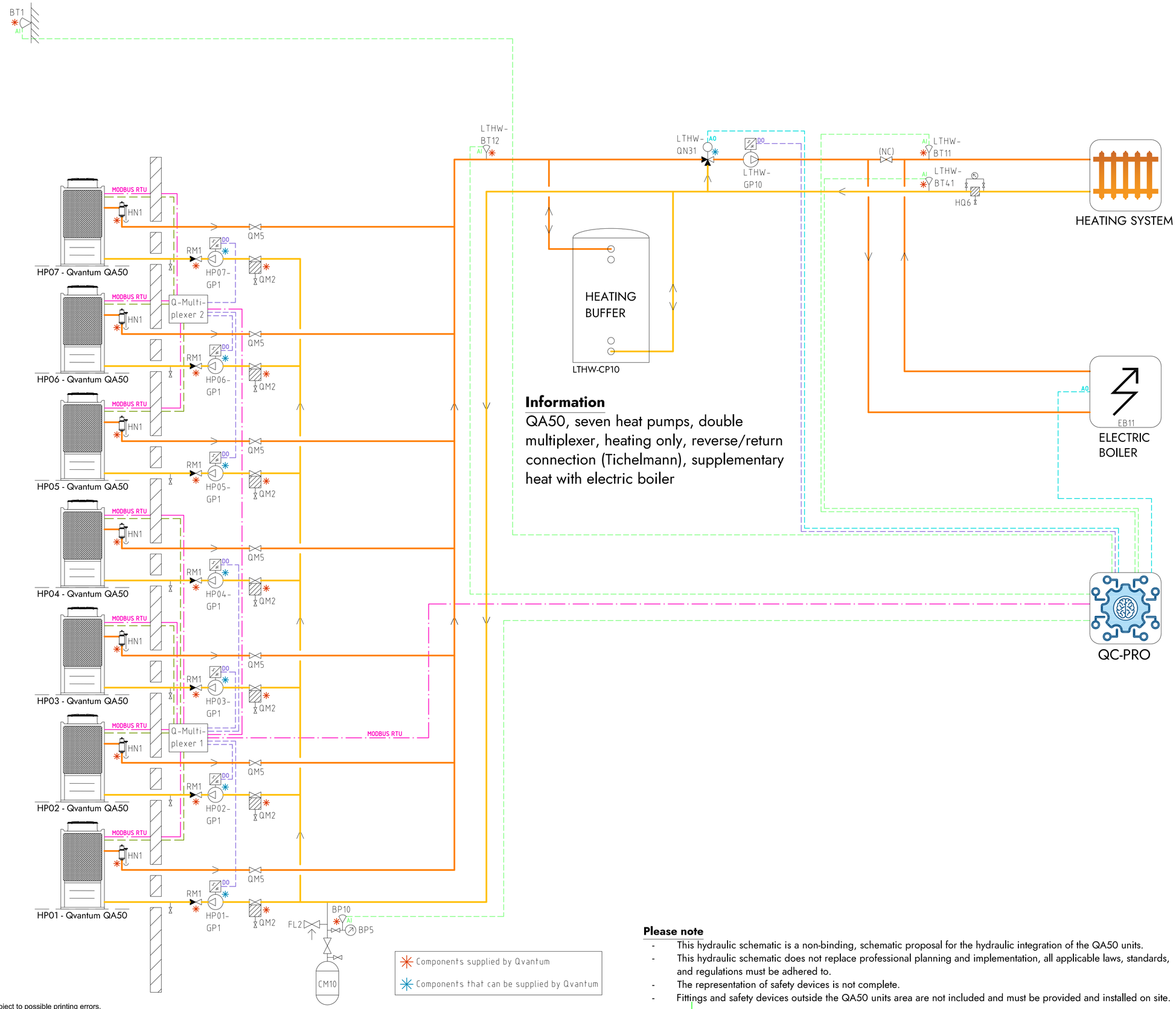
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, seven heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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HEAT PUMPS FOR SUSTAINABLE CITIES

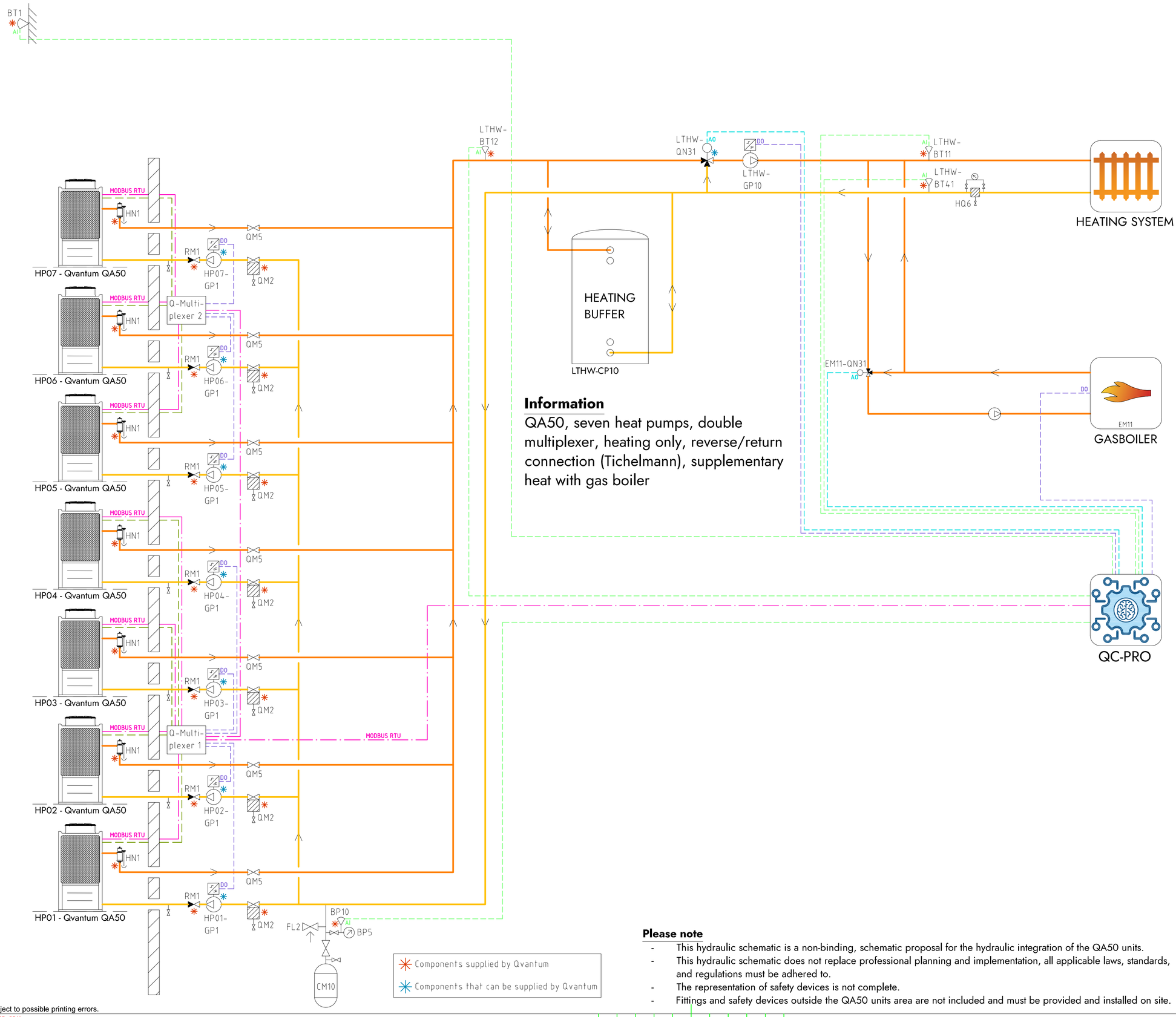
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XREF:
LAGER: SB11

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, seven heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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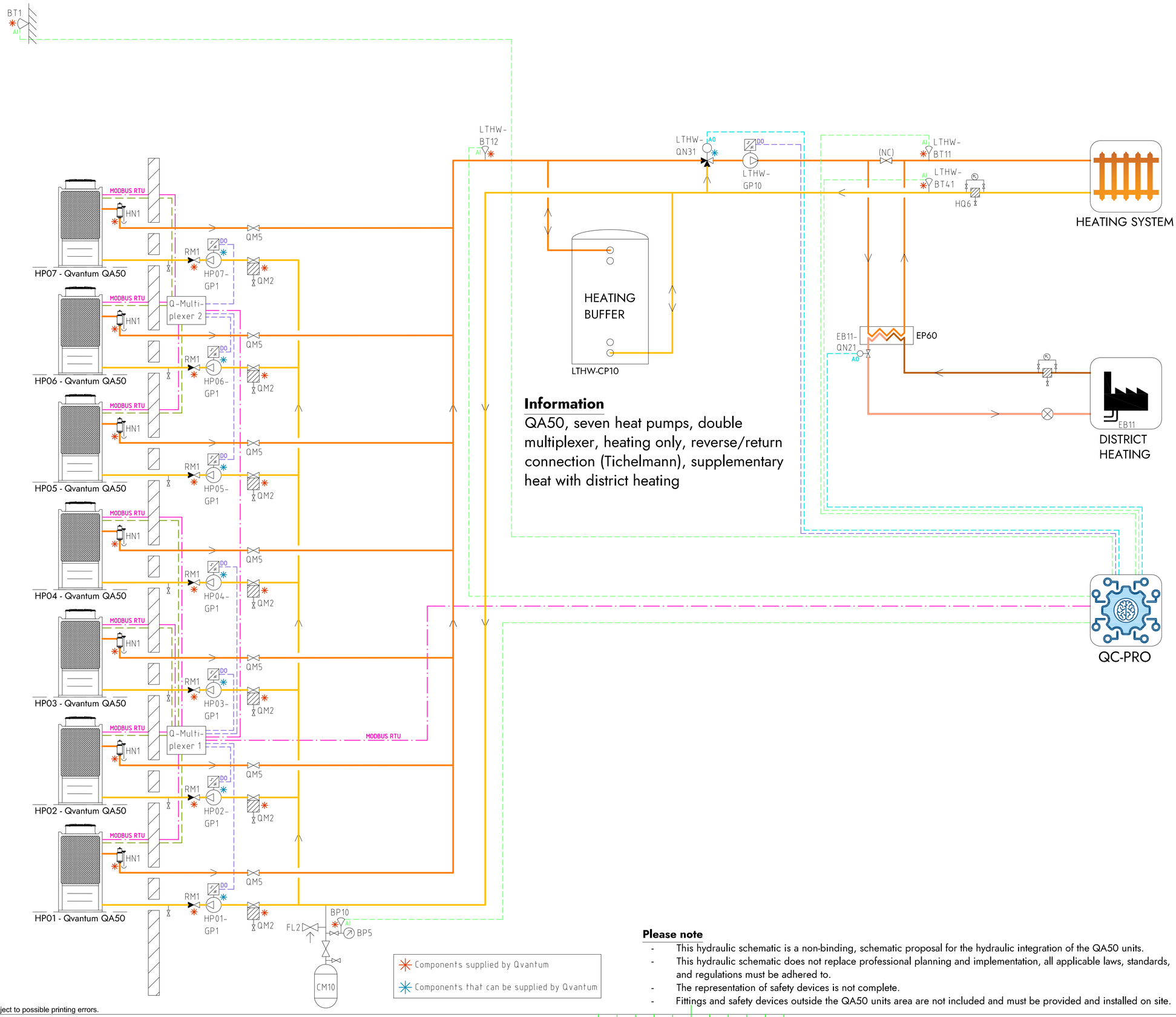
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| JE | QA50-50-8-702 | 162 |

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PLOT: 2026-10-13 16:16 G:\QVANTUM\01 INTERNT\05 RITNINGAR\DOCKNINGSPRINCIPER\QVANTUM QA\RITNINGAR\QA50 - COMMERCIAL, SEVEN HEAT PUMPS COMBINED_2026-10-12.DD TO GP.DWG

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, seven heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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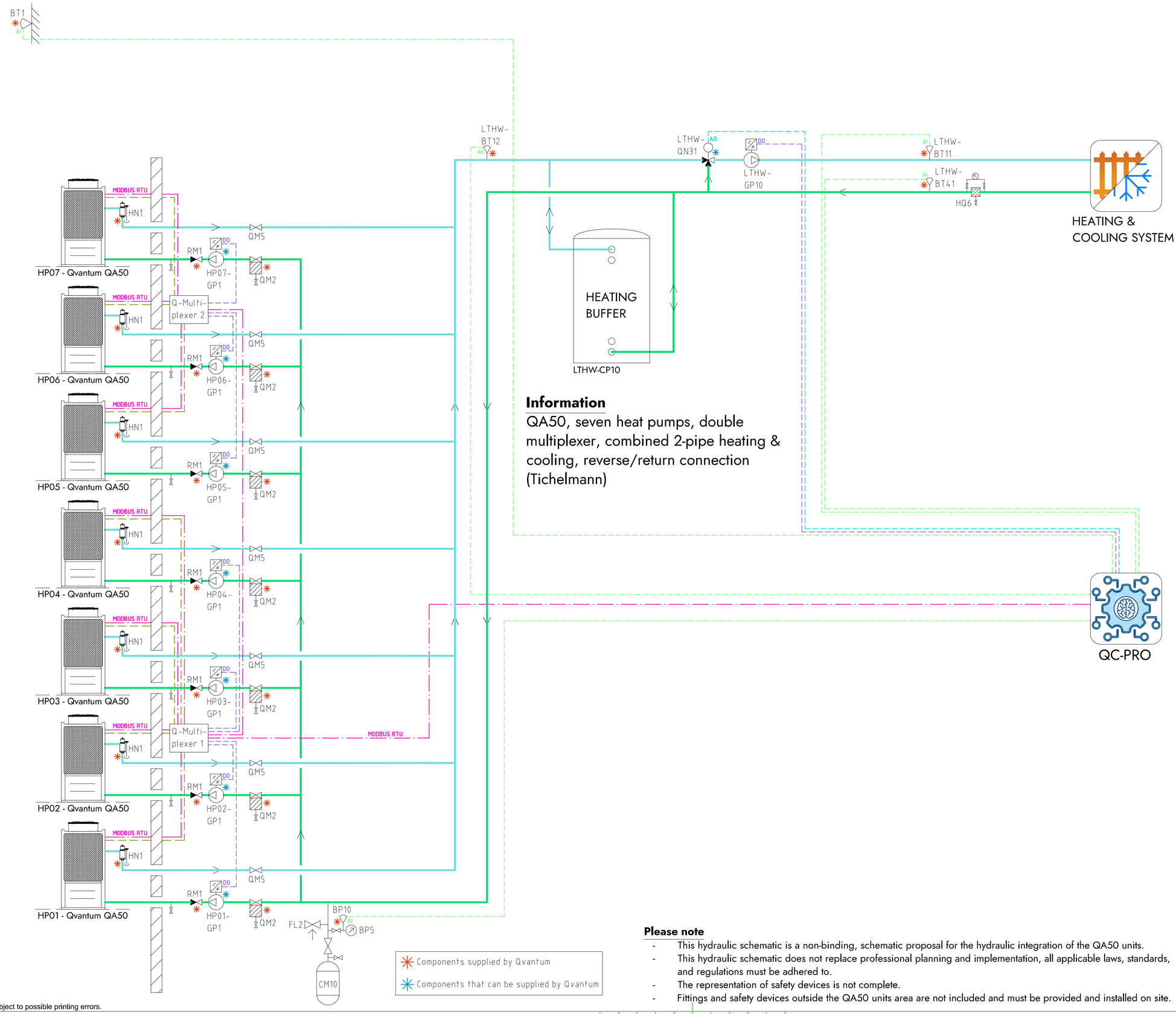
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HEAT PUMPS FOR SUSTAINABLE CITIES

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| JE | QA50-50-8-703 | 163 |

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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, seven heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES

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Ji-te gatan 7, 265 38 Åstorp

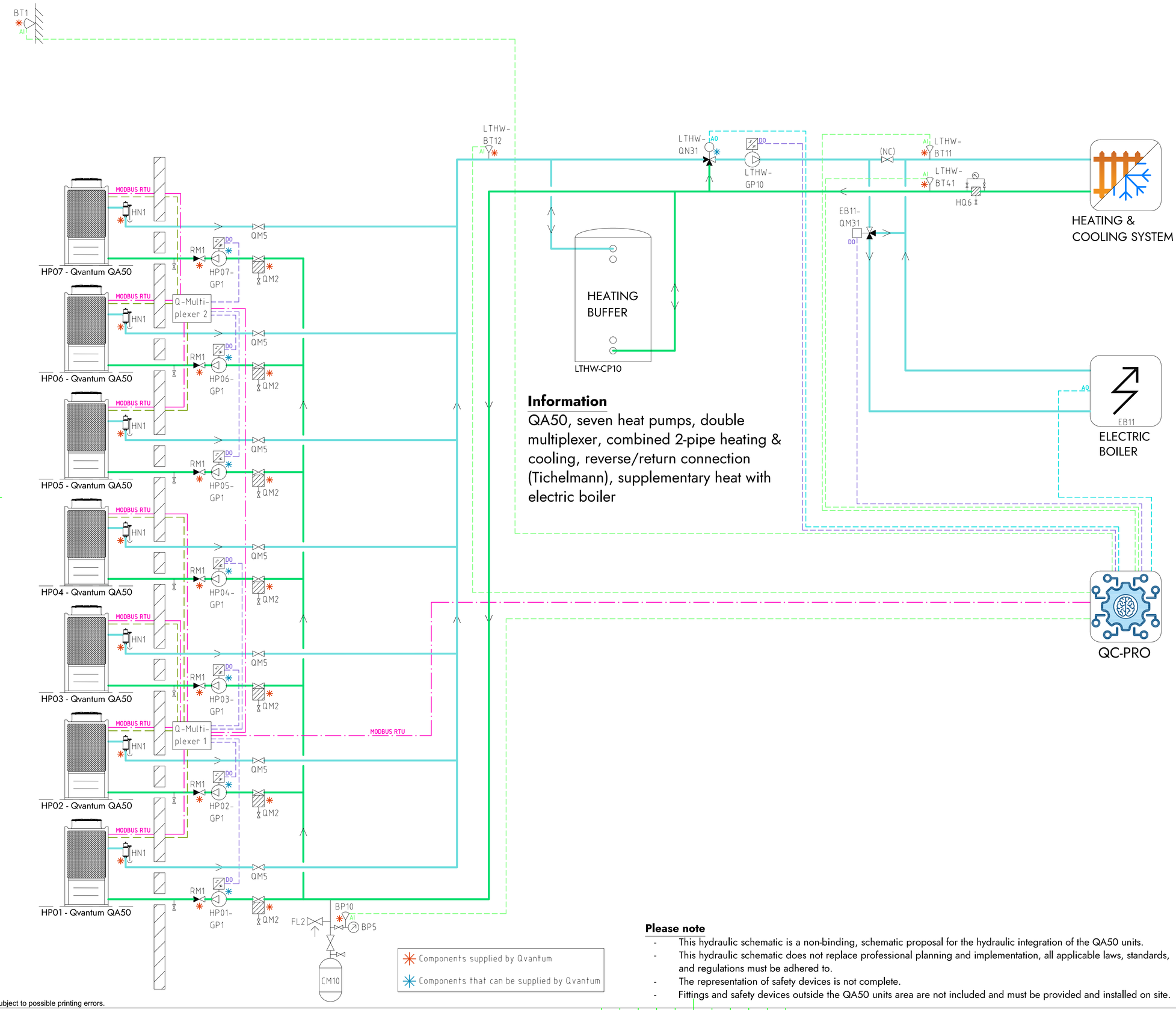
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, seven heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

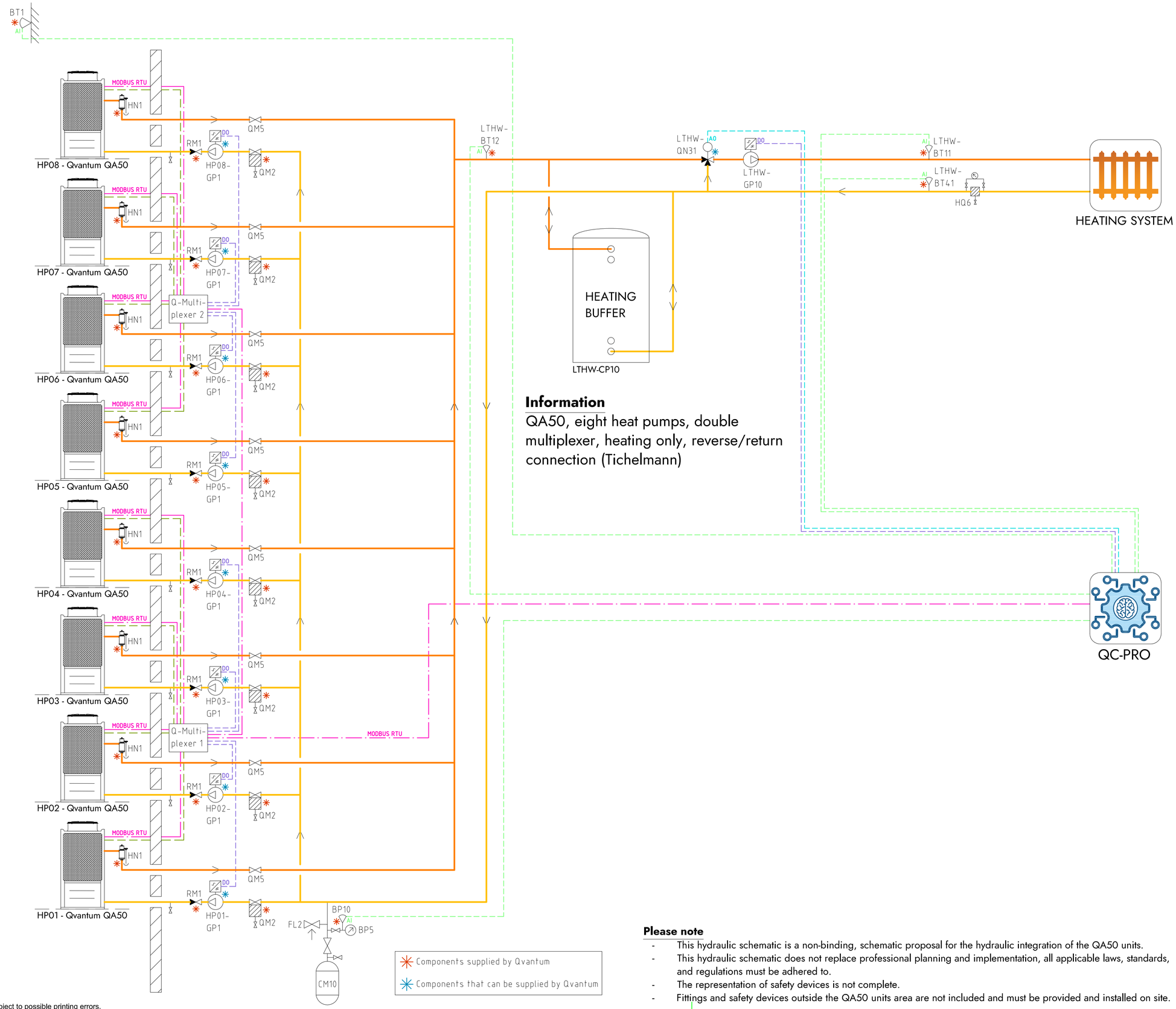
# QVANTUM QA50

# HYDRAULIC SCHEMATICS

## solutions with eight heat pumps

Subject to possible printing errors.

Classification of objects in accordance with IEC 81346-2.




## Information

QA50, eight heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |
| HP08-GP1 | Circulation pump, heat pump 8 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the QA50 units.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete.
- Fittings and safety devices outside the QA50 units area are not included and must be provided and installed on site.

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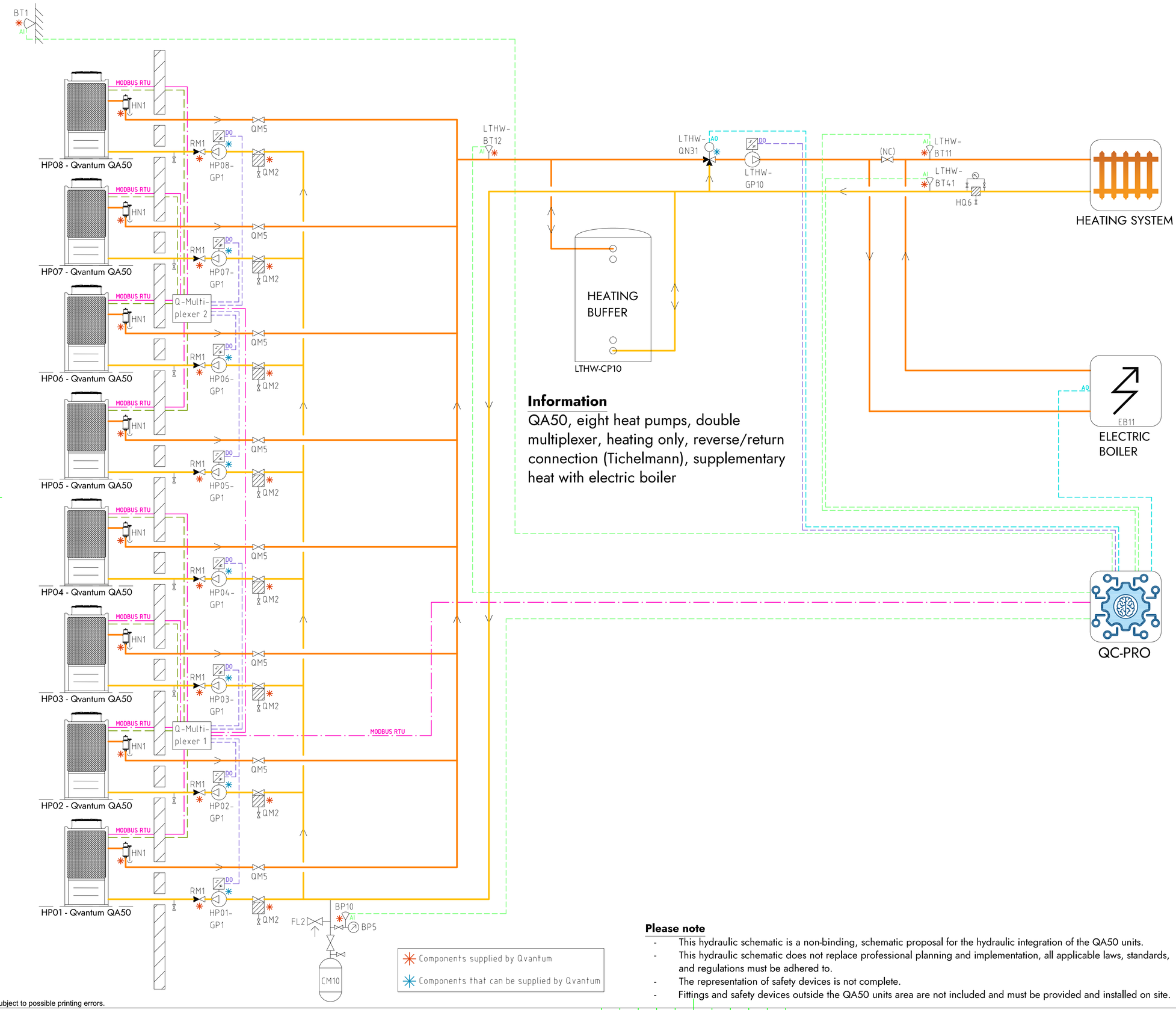
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, eight heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |
| HP08-GP1 | Circulation pump, heat pump 8 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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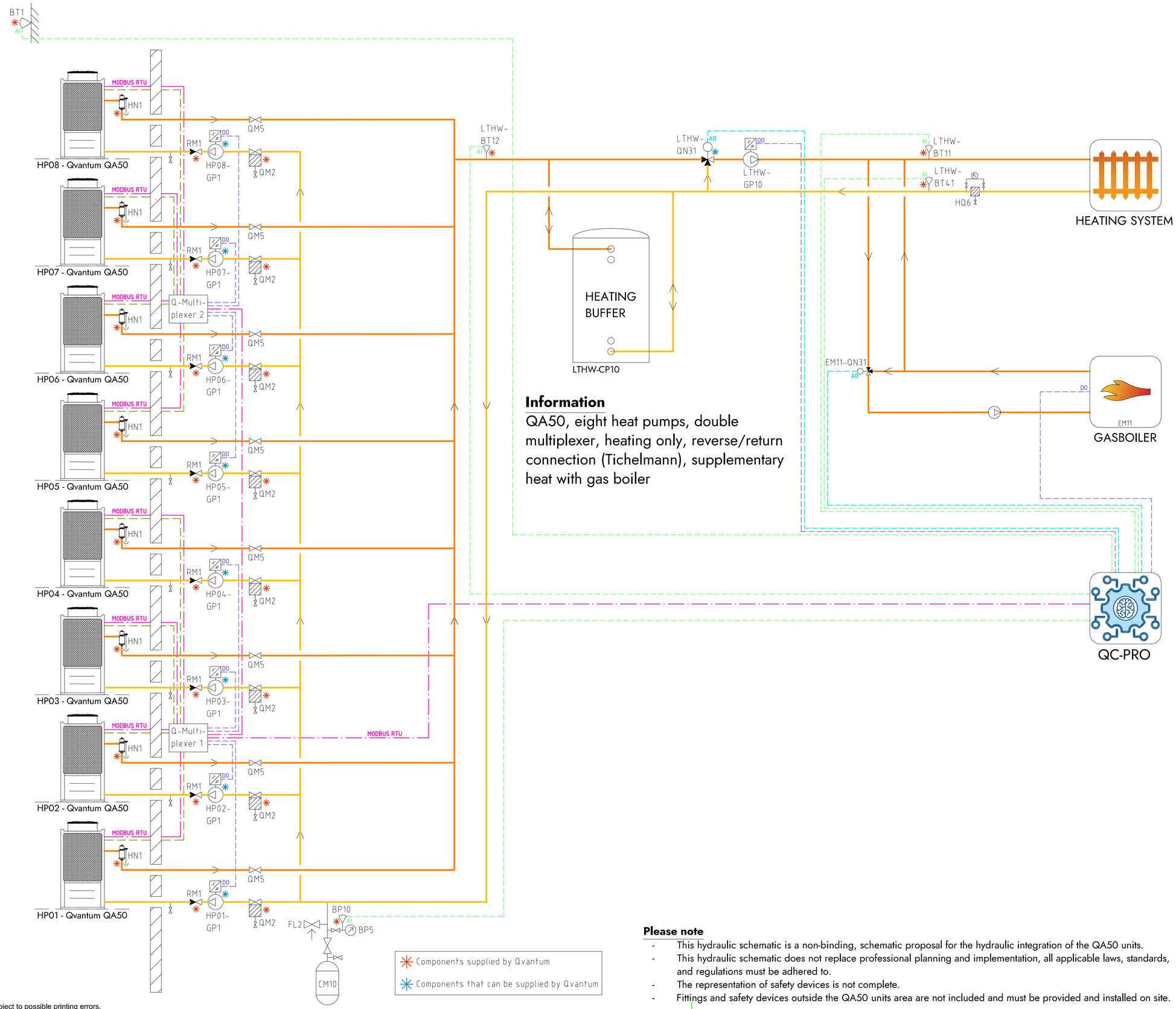
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, eight heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with gas boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |
| HP08-GP1 | Circulation pump, heat pump 8 |

### SYSTEM LTHW

| | |
|---|---|
| EM11 | Gas boiler |
| EM11-QN31 | Mixing valve, Gas boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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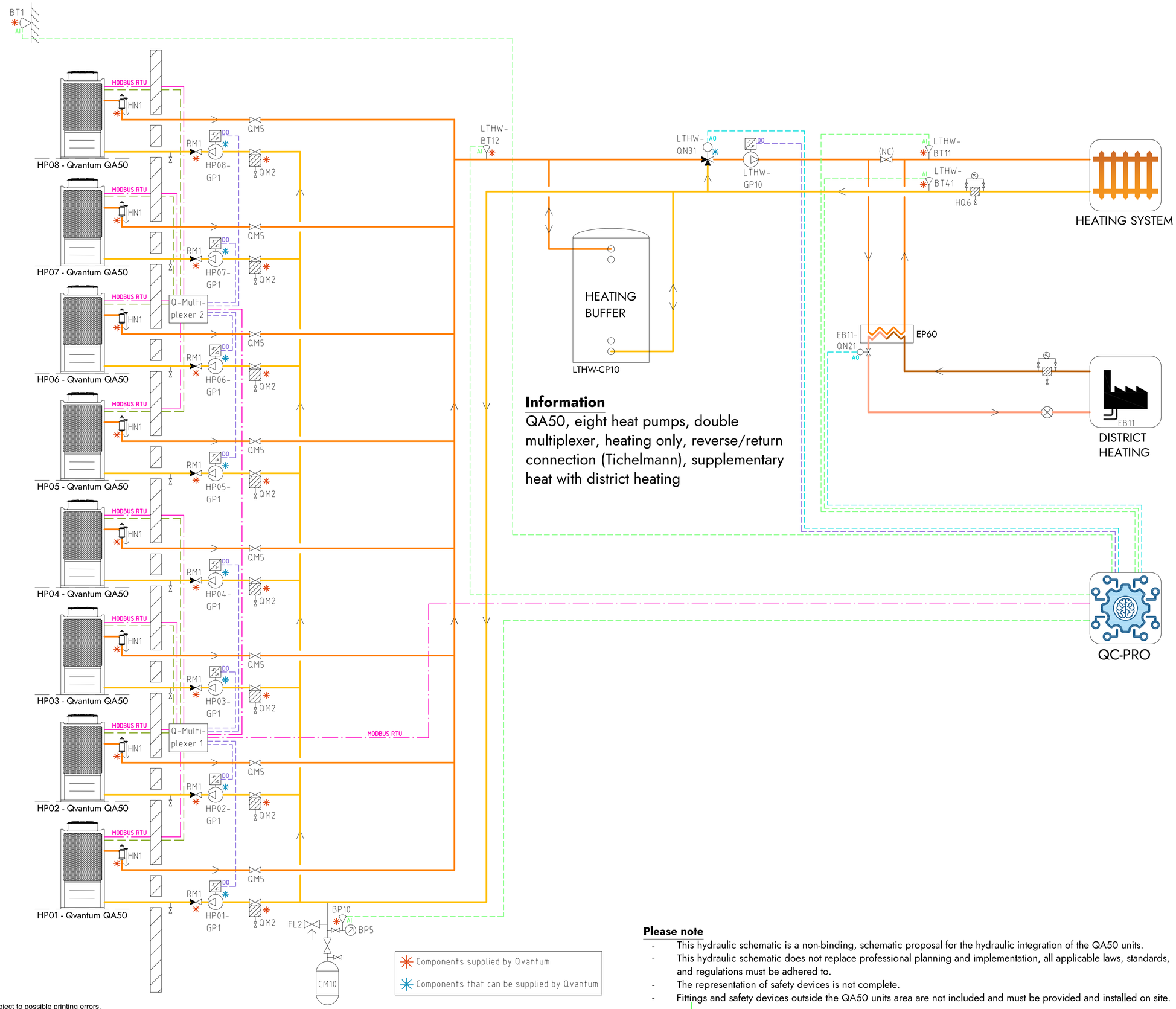
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, eight heat pumps, double multiplexer, heating only, reverse/return connection (Tichelmann), supplementary heat with district heating

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |
| HP08-GP1 | Circulation pump, heat pump 8 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | District heating |
| EB11-QN21 | Control valve, district heating |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

## Please note

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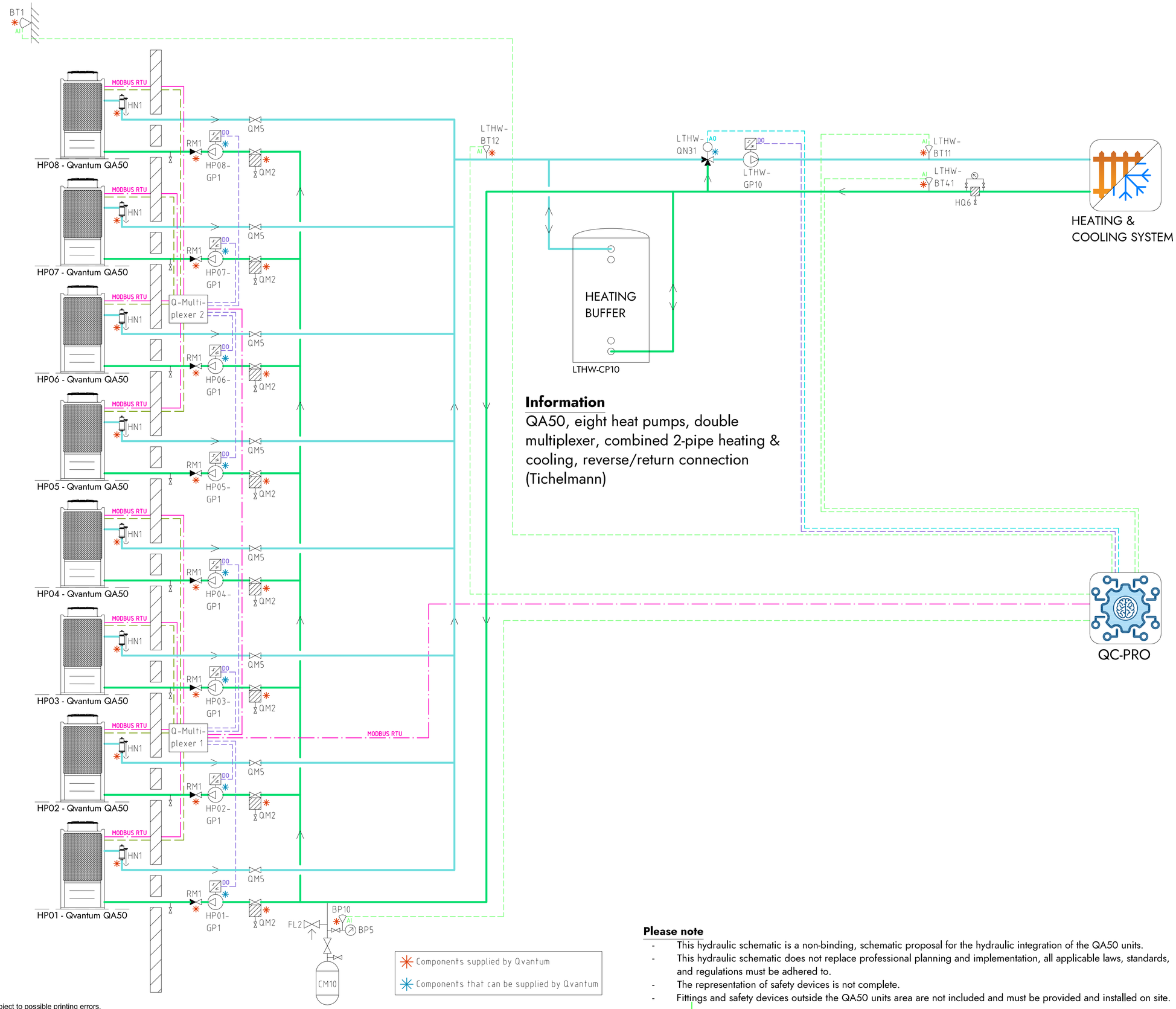
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, eight heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann)

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |
| HP08-GP1 | Circulation pump, heat pump 8 |

### SYSTEM LTHW

| | |
|---|---|
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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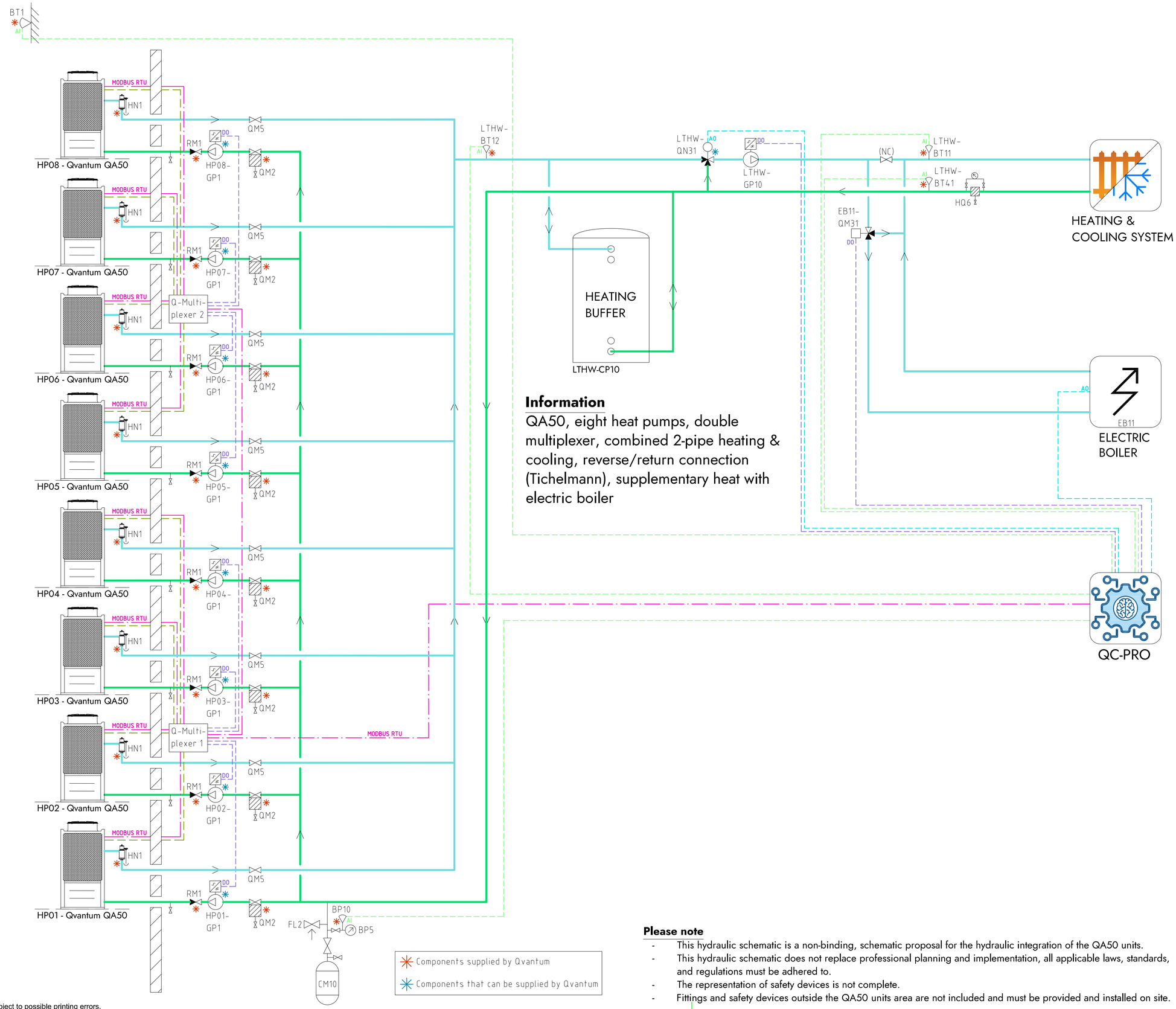
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Classification of objects in accordance with IEC 81346-2.




## Information

QA50, eight heat pumps, double multiplexer, combined 2-pipe heating & cooling, reverse/return connection (Tichelmann), supplementary heat with electric boiler

## COMPONENT DESIGNATIONS

### GENERAL

| | |
|---|---|
| BT1 | Outdoor temperature sensor |
| BP10 | Pressure sensor (expansion) |
| CM10 | Expansion vessel |
| FL2 | Safety valve (expansion) |
| HN1 | Gas separator |
| HQ6 | Strainer, heating system |
| RM1 | Non return valve |
| QM2 | Filterball |
| QM5 | Isolation valve |
| QC-Pro | Qvantum controller |

### HEAT PUMPS

| | |
|---|---|
| HP01-GP1 | Circulation pump, heat pump 1 |
| HP02-GP1 | Circulation pump, heat pump 2 |
| HP03-GP1 | Circulation pump, heat pump 3 |
| HP04-GP1 | Circulation pump, heat pump 4 |
| HP05-GP1 | Circulation pump, heat pump 5 |
| HP06-GP1 | Circulation pump, heat pump 6 |
| HP07-GP1 | Circulation pump, heat pump 7 |
| HP08-GP1 | Circulation pump, heat pump 8 |

### SYSTEM LTHW

| | |
|---|---|
| EB11 | Electric boiler |
| EB11-QM31 | Switching valve, electric boiler |
| LTHW-BT11 | Flow temperature, main heat system |
| LTHW-BT12 | Flow temperature, primary heat system |
| LTHW-BT41 | Return temperature, main heat system |
| LTHW-CP10 | Heating buffer |
| LTHW-GP10 | Circulation pump, main heat system |
| LTHW-QN31 | Mixing valve, main heat system |

## COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve, modulating actuator
- Strainer
- Isolation valve
- Non return valve
- Safety valve

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HEAT PUMPS FOR SUSTAINABLE CITIES



## Solution and Heat Pump Experts

Qvantum was founded 1993 with a vision to develop innovative high quality heat pumps.
Today Qvantum continues on this path developing the solutions needed for decarbonization of our cities.

Qvantum is also a company with leading experts in the design of the next generation (5th) district heating and cooling solutions for dense urban areas.

By combining these competence areas, Qvantum can provide solutions that will make it easier for Engineering consultants,
Installers, Project developers and Utilities, to decarbonize the heating and cooling of our cities.