



Nano Series

Electric Spa & Small-Pool Heater
Installation, Operating & Maintenance Manual

Series codes: 203.11.229 – 203.11.238



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1. Safety Warnings

Read and follow these instructions for proper installation, use and maintenance. **Failure to install the unit correctly may void the warranty.** Retain this manual for future reference.

INSTALLATION BY A QUALIFIED ELECTRICIAN ONLY

This device must be installed by a **qualified electrician** in accordance with national and regional requirements, and an **Electrical Installation Certificate** must be provided on completion. The manufacturer is not liable for issues caused by poor or improper installation. **Any alteration** to the unit, or replacement of components with non-standard parts, **affects the warranty**.

30 mA RCD — MANDATORY

The supply line must be fitted with a **30 mA residual-current device (RCD)** and a correctly rated circuit breaker. The heater has a **40 A reset thermal cut-out tripping at 60 °C**. The electrician may replace the supplied cable gland with a larger size if required for the cable.

FIRE HAZARD — COMBUSTIBLE SURFACES

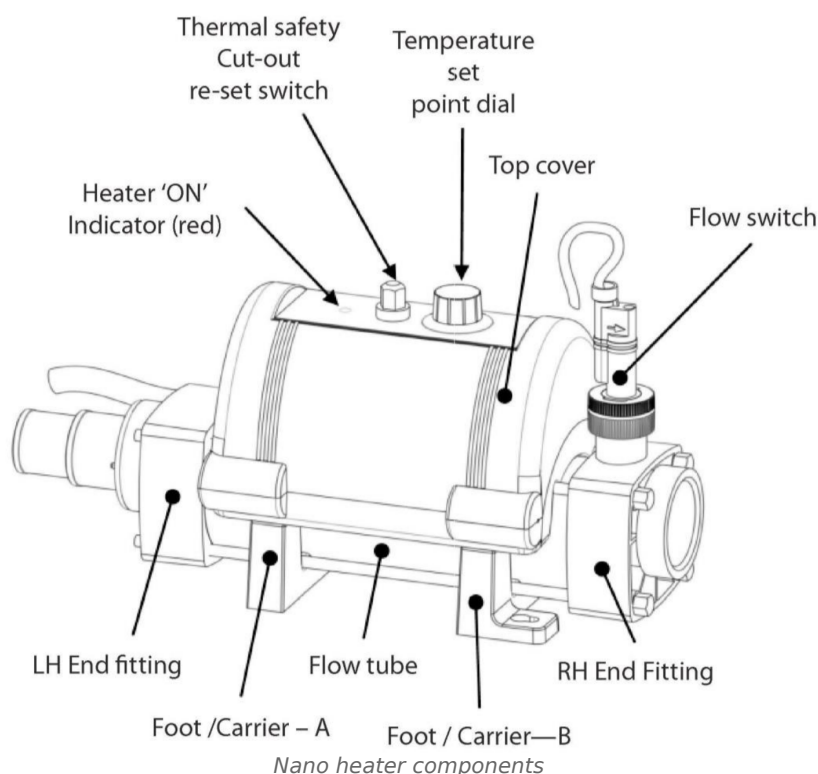
If the heater is placed against **combustible material**, a fireproof barrier must be fitted covering a minimum of **15 cm around** the outside of the unit. **Do not cover** the unit — adequate ventilation is required.

DRY LOCATION — MOISTURE VOIDS THE WARRANTY

The heater must be installed in a **dry, permanent, weather-proof area**. In any case where **water or moisture enters the enclosure the warranty is void**. If the heater is unused during the winter months it must be **drained**: water freezing inside will cause severe damage.

2. The Nano Series

The **Nano** series are compact Electro electric heaters, made in England, for **spas, whirlpools and small pools**. It comprises two models with an **identical body and hydraulic section**: the **Spa Series** (1 – 6 kW single phase and 8 kW three phase, thermostat **0 – 45 °C**) and the **Splasher** (2 – 3 kW single phase, thermostat 0 – 40 °C). Both have an analogue thermostat, a heating indicator lamp and a flow switch.



Nano heater components

Key: thermal safety cut-out re-set switch · temperature set point dial · heater 'ON' indicator (red) · top cover · flow switch · LH / RH end fitting · flow tube · foot / carrier.

3. Technical Data & Product Codes

Spa Series — spa & small pool

Oxygen code	Output	Current	Voltage / Phases
203.11.229	1.0 kW	5 A	220-240 V / 1PH
203.11.230	2.0 kW	9 A	220-240 V / 1PH
203.11.231	3.0 kW	13 A	220-240 V / 1PH
203.11.232	4.0 kW	18 A	220-240 V / 1PH
203.11.233	4.5 kW	20 A	220-240 V / 1PH
203.11.234	5.0 kW	22 A	220-240 V / 1PH
203.11.235	6.0 kW	27 A	220-240 V / 1PH
203.11.236	8.0 kW	20 A	380-400 V / 3PH

Splasher — small pool

Oxygen code	Output	Current	Voltage / Phases
203.11.237	2.0 kW	9 A	220-240 V / 1PH
203.11.238	3.0 kW	13 A	220-240 V / 1PH

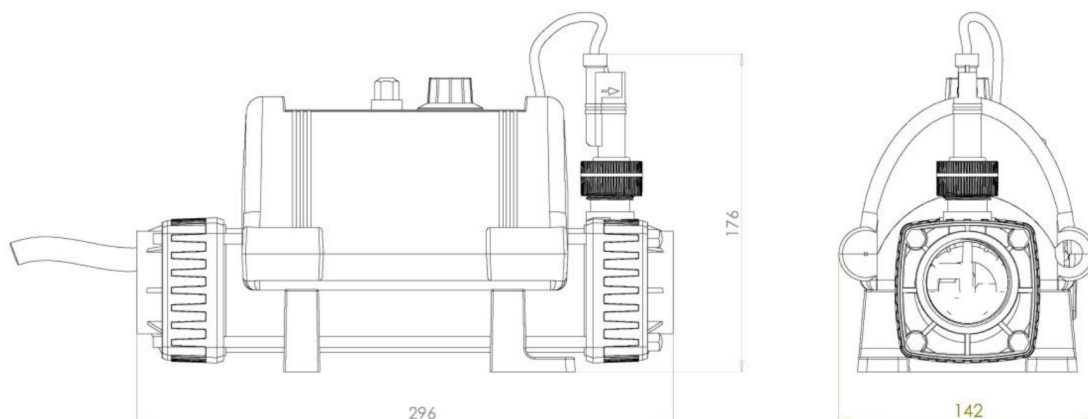
Common series data

Output range	1.0 – 8.0 kW
Voltage	220-240 V single phase · 380-400 V three phase (8 kW)
Frequency	50/60 Hz
Thermostat range	Spa Series 0 – 45 °C · Splasher 0 – 40 °C
Maximum flow	17 m³/h
Minimum flow	1 m³/h — all models
Minimum pipe bore	32 mm
Thermal cut-out	40 A reset, trips at 60 °C
Safety devices	flow switch · thermal cut-out with manual reset
Country of manufacture	England

4. Dimensions

The dimensions apply to **both versions** and are given in millimetres (mm).

Dimension	Value
Length	296 mm
Height	176 mm
Width	142 mm



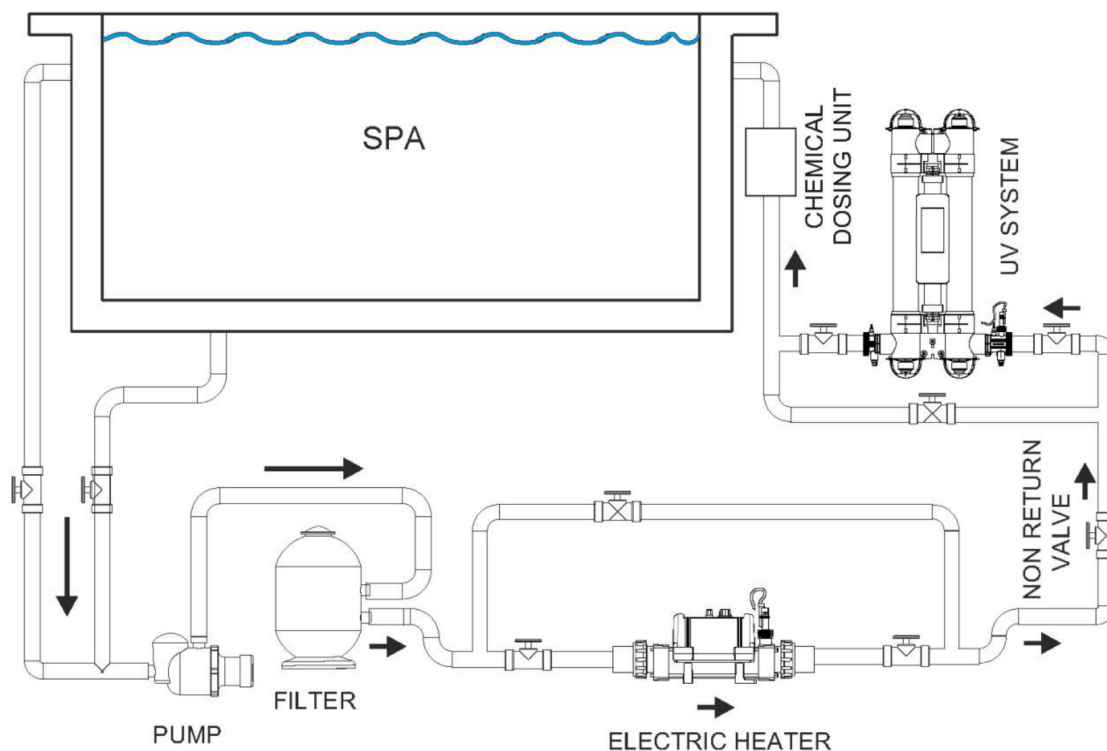
Dimensions — "L" varies with output

5. Installation & Mounting

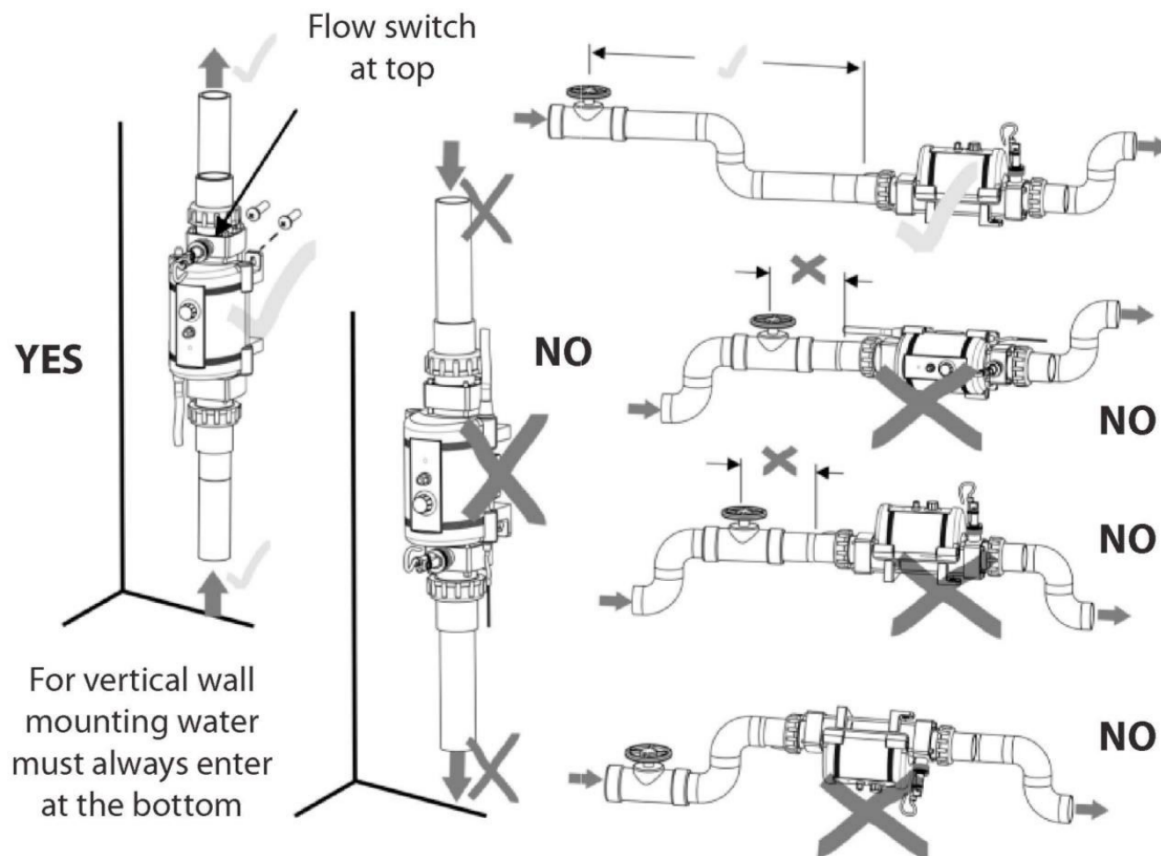
- The heater is installed **horizontally or vertically**, with enough space for the pipe connections and wiring.
- It must be **firmly secured with screws** to a firm base or wall.
- On combustible material, fit a fireproof barrier covering at least **15 cm** around the unit.
- **Do not cover** the unit — adequate ventilation is required.
- The location must be **dry and weather-proof**.

6. Pipe Work

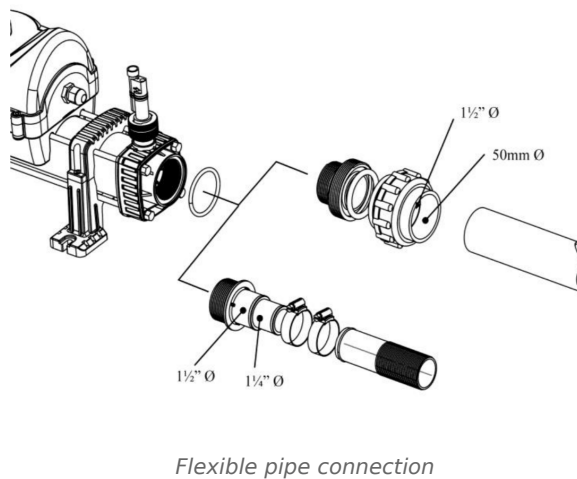
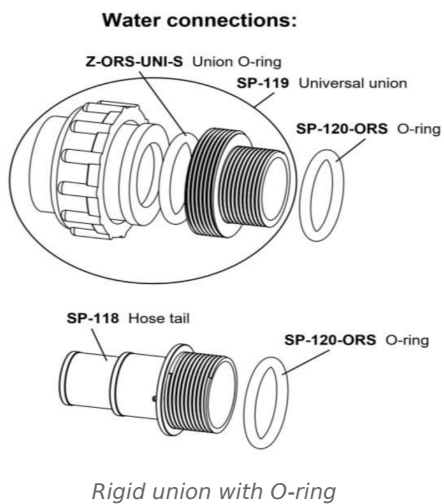
- The heater is installed at a **low point** in the filtration system.
- Always **after the filter** and **before** any dosing or other water-treatment equipment.
- The pipe work to and from the heater must have a **minimum bore of 32 mm**.
- The return pipe carrying water back to the pool must incorporate a **safety loop** ("kick-up") **as close as possible** to the heater. It supports correct air purging and keeps the heater **completely full of water**.
- The heater accepts flow from **one end only**. If the flow direction is opposite, **rotate the heater by 180°** so the flow switch is always where the water **exits**.
- **DO NOT REVERSE THE FLOW SWITCH.**
- On **rigid unions** no mastic or PTFE tape is needed — use the **O-ring supplied**.
- On **flexible pipe**, connect to the non-threaded side of the hosetail and secure with **two jubilee clips**; wrap PTFE tape or silicone before connecting.



Position in the circuit — pool/spa, pump, filter, electric heater, chemical dosing unit, UV system, non-return valve

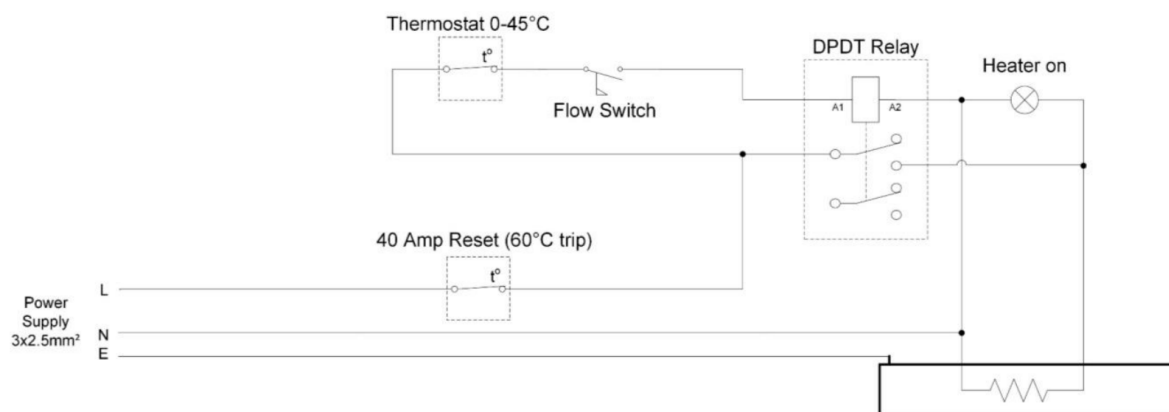


Orientation — the flow switch must **always be at the top**; YES = correct, NO = incorrect

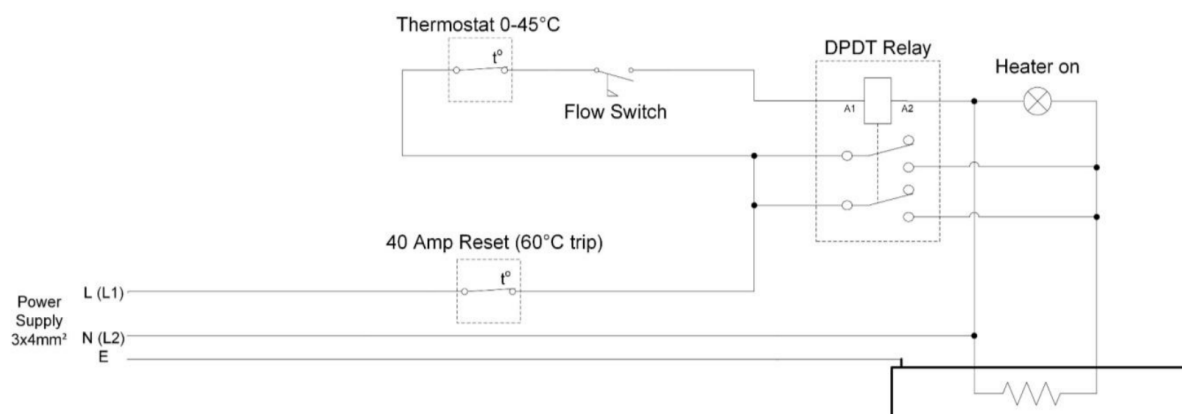


7. Electrical Connection

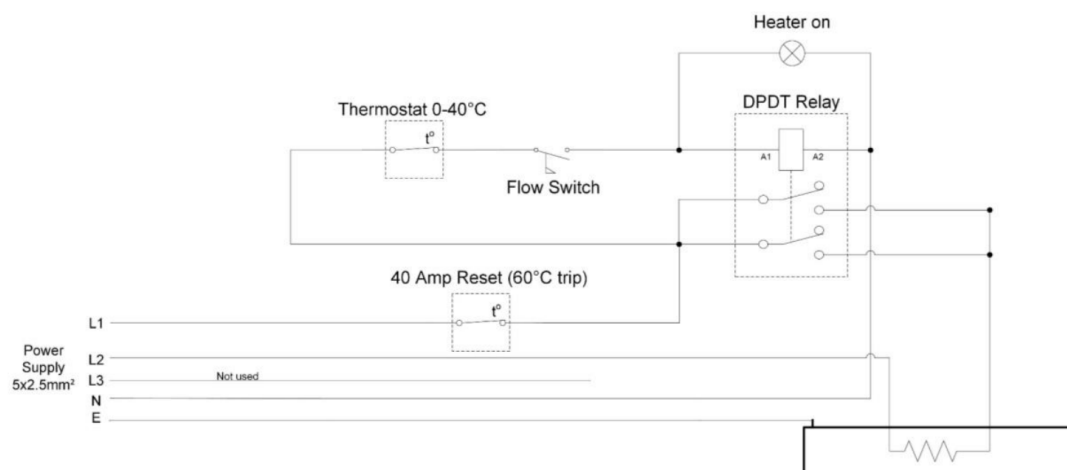
- The power supply must be fitted with a **30 mA RCD**. The electrician may replace the supplied cable gland with a larger size if required.
- Remove the **access cover** to connect the power supply cable.
- Make sure all terminal-block connections match **the label inside the heater** and are tight.
- Protect the cable from **sharp edges, hot surfaces and crush hazards**; fix it so it is not a trip hazard.



Single phase, 3x2.5 mm² cable



Single phase, 3x4 mm² cable



Three phase, 5x2.5 mm² cable

Key: thermostat · flow switch · DPDT relay · heater on lamp · 40 A reset (60 °C trip) thermal cut-out · power supply.

8. Water Quality & Flow

Water quality **must** be within the following limits. **Failure to meet them voids the warranty.**

Parameter	Limit
pH	6.8 – 8.0
Total alkalinity (TA)	80 – 140 ppm
Chloride content	max 150 mg/l
Free chlorine	2.0 mg/l
Total bromine	max 4.5 mg/l
Calcium hardness	200 – 1,000 ppm

SALT CONTENT — DEPENDS ON THE MODEL

The permitted salt concentration depends on the model purchased:

- **Incoloy 825** heating element → **zero** salt content permitted.
- **Titanium** heating element → up to **8,000 ppm (8 g/litre)**.
- Above 8,000 ppm a model with a **titanium flow tube AND titanium element** must be installed.

Flow	Value
Maximum flow rate	17 m ³ /h — above this a bypass is required to prevent damage to the heating elements
Minimum flow rate	1 m ³ /h — on every Nano model

9. Operation

- On completion of the installation, run the circulating pump to **purge all air** from the system and the heater.
- Switch on the power supply and set the thermostat to the desired temperature.
- The heater starts heating (**red light illuminated**) **only** when the pump is running above the minimum flow rate **and** the set point is higher than the water temperature.
- Once the set point is reached, the heater maintains the temperature within a **0.5 °C** differential.

Useful advice: to reduce running costs and speed up heating, insulate the pool wherever possible. A **floating cover** is an essential minimum to retain heat.

10. Troubleshooting

Message / Symptom	Possible cause	Remedy
Heating does not start	The set temperature has already been reached.	Turn the dial above the current water temperature.
The flow tube feels warm	Direct sunlight, or an air pocket trapped inside (especially if the highest point feels warmer).	Shade the unit; purge the system completely.
The returning water does not feel much warmer	Normal: the temperature gain per pass is proportional to the flow. A 6 kW heater at 4 m ³ /h gives about 1.2 °C per pass.	None. Slowing the flow does not speed up heating.
Circuit breaker trips after hours	Faulty or incorrectly sized MCB; insufficient cable cross-section; loose connections at either end of the supply cable.	Electrician: check the installation and protection.
Circuit breaker or RCD trips instantly	Short circuit in the wiring or a faulty component; heating element going to ground or damaged; moisture inside the heater.	Return the heater to the manufacturer.
The supply cable gets very hot	Insufficient cable cross-section or loose connections.	Electrician: inspect connections and upgrade the cable.

11. Maintenance & Winterising

- **Annual maintenance and cleaning** is recommended.
- **Before any maintenance, isolate the unit from the mains.**
- Drain the heater and clean the **flow tube and heating elements** of scale, sludge and debris — this extends element life and avoids failures.
- Check that electrical cable connections are **properly tightened**.
- **Winterising:** if the heater is not in use it must be **drained**. Water freezing inside will cause severe damage.
- Dispose of electrical and electronic equipment in accordance with the applicable regulations.

12. Warranty & Contact

- Guaranteed for **two years within Europe** and one year outside, from the date of purchase, against faulty workmanship and materials.
- The manufacturer will, at its discretion, **replace or repair** faulty units or components returned for inspection. Proof of purchase may be required.
- Not covered: **incorrect installation**, inappropriate use or neglect, **failure to connect the Safety Circuit**, moisture in the enclosure, water outside the quality limits, frost damage.
- Shipping damage must be reported **within 48 hours** of receipt; later claims are not covered.
- **Consumables** (glass parts, seals, water connections) are excluded.

Contact Information

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ISO Certifications

ISO 9001:2015 Quality Management <i>EUROCERT</i>	ISO 14001:2015 Environmental Management <i>BQV</i>	ISO 45001:2018 Occupational Health & Safety <i>BQV</i>
ISO 22301:2019 Business Continuity <i>EUROCERT</i>	ISO 46001:2019 Water Efficiency <i>BQV</i>	

Recycling of materials must be carried out in accordance with applicable regulations.