OXYGON

SWIMMING POOL · WATER TREATMENT · HEATING · COOLING

Dual Line

Dual-Energy Heat Exchanger

Installation, Operation & Maintenance Manual

Series codes: 203.11.348 – 203.11.351

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1. Safety Warnings

Read the following instructions carefully before installing, operating or servicing the unit. The manufacturer accepts no liability for damage to the device, the environment, property or persons resulting from failure to observe them.

INSTALLATION BY QUALIFIED PERSONNEL ONLY

Installation and electrical connection may be carried out **only by a licensed electrician**. **Never open the control box** without properly disconnecting the power supply and making sure it cannot be switched back on unintentionally. No modification of the device is permitted without consulting the manufacturer.

FIRE AND SCALDING HAZARD

If a safety device fails, the heat exchanger may reach **100 °C** and the water connections **90 °C — risk of burns**. For wall mounting, especially on easily flammable material, insert a heat-resistant plate at least **10 cm larger** on every side. Do not install the unit near flammable material and **do not cover or insulate it**.

INTERLOCK WITH THE FILTER PUMP — MANDATORY

Both the heating element and the heating pump must be interlocked with the filter pump: **neither may be switched on while the filter pump is not running**. Do not operate the heat exchanger with the flow switch — that is a safety device, not an operating switch.

NEVER HALF-FULL — IT WILL BE DESTROYED

The heat exchanger must be **either completely full of water or completely empty**. If it is left half-full during standstill or winterising, air combined with chlorine residue — even in the smallest amounts — builds an aggressive atmosphere that **will destroy it**.

2. Description & Operating Principle

The **Dual Line** is a **dual-energy** heat exchanger: it heats the water either **electrically**, through the immersed heating element, or **hydraulically**, through the coiled tube connected to a boiler, heat pump or solar circuit. It can also run **both systems at the same time**, which raises the capacity considerably: use your preferred energy source and add the other one when needed.

- **Casing and coil: electropolished AISI 316 / 1.4404** stainless steel.
- **Heating element: Incoloy 800** with additional nano-coating to **ASTM B117**, which significantly prevents deposits.
- **Standard equipment:** flow switch for low-water protection and a **55 °C** safety thermostat.
- **Connection: Ø 50 mm** gluing socket into the pool circuit.
- **Space-saving design** — ideally suited to spas, whirlpools, small pools and similar facilities.

Hydraulic capacity: with primary water at **70 °C** the exchanger delivers **7 kW**; at **50 °C** it delivers **3 kW**. The electrical output (2 / 3 / 5 kW) is **added** to that when both systems run together.

3. Technical Data & Product Codes

Oxygon code	Type	Electrical output	Voltage / Phases	Current
203.11.348	E2WX	2 kW	240V / 1PH	8.8 A
203.11.349	E3WX	3 kW	240V / 1PH	12.9 A
203.11.350	E5WX	5 kW	240V / 1PH	21.5 A
203.11.351	E3WX-400V	3 kW	400V / 3PH	4.3 A

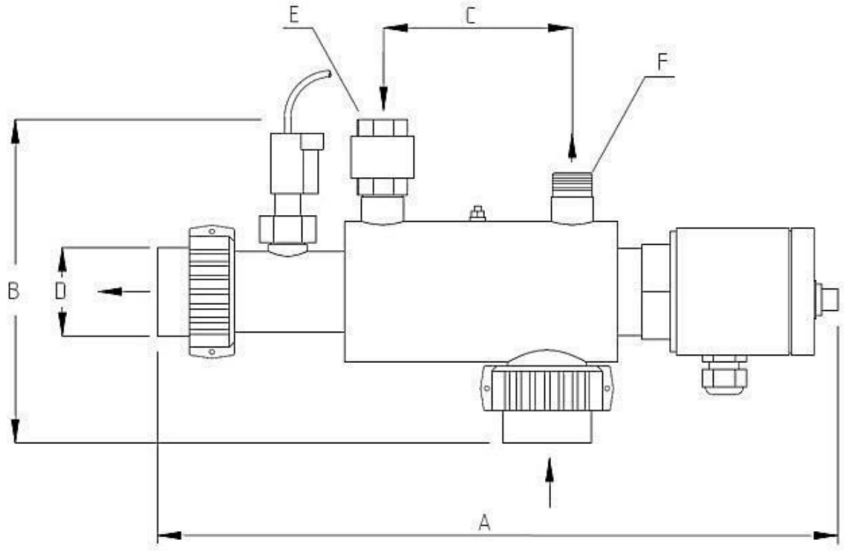
Common series data

Hydraulic capacity	7 kW at 70 °C | 3 kW at 50 °C
Max. primary temperature	70 °C
Max. operating pressure	primary 10 bar | secondary 3 bar
Flow rate	primary 15 l/min (0.9 m³/h) | secondary 100 l/min (6 m³/h)
Casing & coil material	AISI 316 / 1.4404, electropolished
Heating-element material	Incoloy 800, ASTM B117 nano-coating
Safety thermostat	55 °C
Flow monitoring	flow switch (in series)
Control-circuit fuse	630 mA | max. load 1 A
Water connections	Ø 50 mm gluing socket (secondary) · 3/4" (primary)
Frequency	50/60 Hz
Protection rating	IP X5
Specific water resistance	≥ 550 kΩ·cm at 15 °C

4. Dimensions

The dimensions apply to **all four models** and are given in millimetres (mm).

Ref.	Dimension
A	435 mm
B	200 mm
C	125 mm
D	Ø 50 mm
E	3/4" female
F	3/4" male



Dual Line series dimensions

Important: allow clear space in front of the control box so the heating element can be withdrawn for servicing.

5. Water Quality & Corrosion Prevention

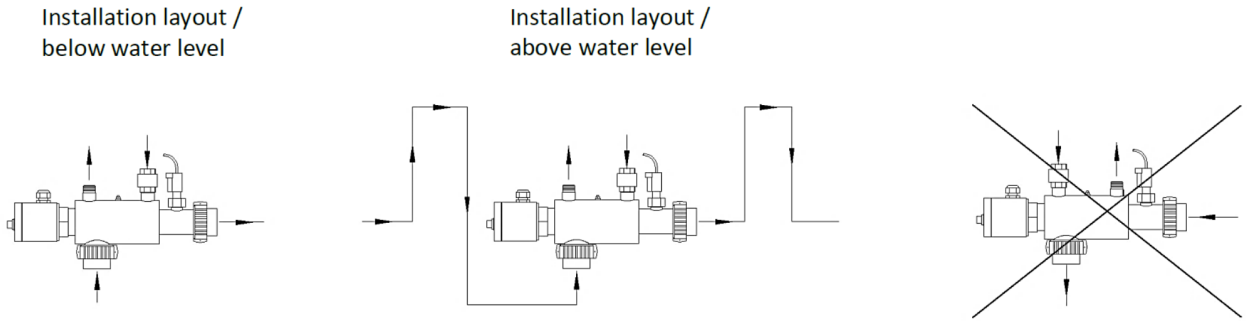
The service life of the exchanger depends **directly** on water chemistry. The limits below are binding.

Parameter	Limit
Chloride (Cl^-)	up to 500 mg/l
Free chlorine	up to 1 mg/l
pH	6.8 – 7.8
Specific water resistance at 15 °C	≥ 550 kΩ·cm

- The **disinfection device must be installed after** the heat exchanger, and in such a way that **neither chemicals nor gases** can enter it while it is switched off.
- Make sure no iron-bearing metals are washed into the exchanger — they cause **contact corrosion**.
- In correctly balanced water the specific resistance remains between 1.5 MΩ·cm and 550 kΩ·cm.
- See the installation instructions as well — several of them are corrosion-prevention measures in their own right.

6. Installation

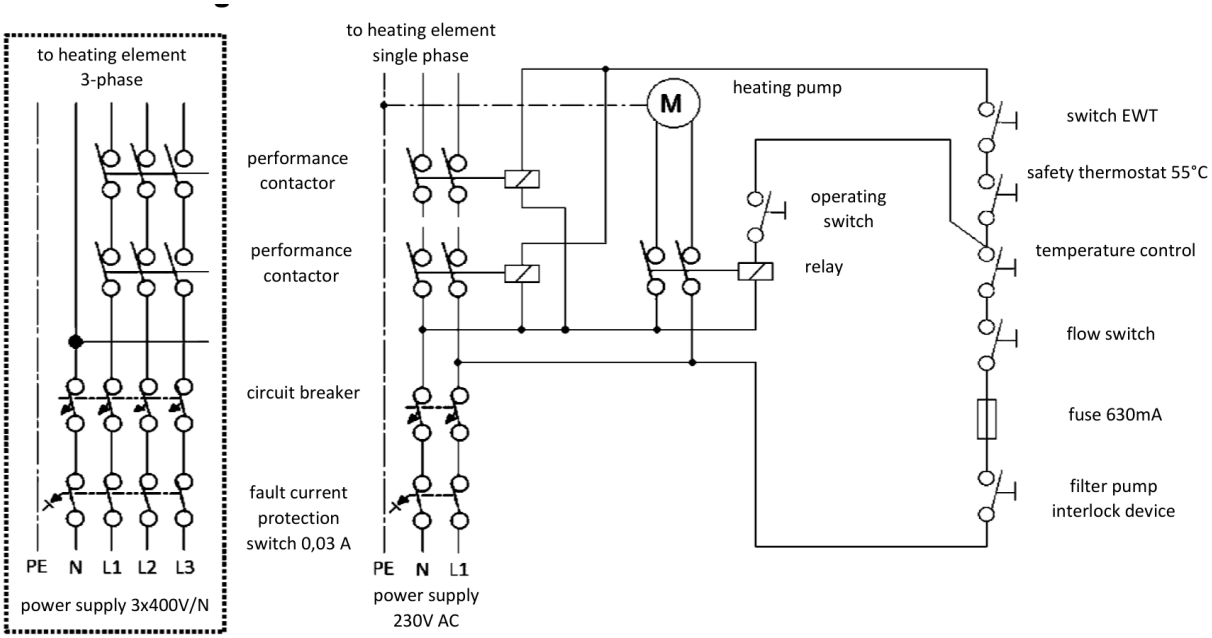
- Always install the heat exchanger **after the filter**.
- The flow in the **coil** (primary) must run **opposite** to the pool-water flow (secondary) — counter-flow.
- Mount it so that it can always be completely filled or completely drained.
- If it fails to perform after initial start-up, **remove all air from the primary side** (A/B) and check that inlet and outlet are correctly installed (A-B / C-D).
- Water enters through the **no-return valve**, which also protects against overheating.



*Installation layouts — left below water level, centre above water level; right the **prohibited** arrangement*

7. Electrical Connection

- Install an **FI (RCD) 0.03 A** residual-current device and a circuit breaker upstream of the unit.
- The exchanger must be **earthed** and all metal parts included in the **equipotential bonding**.
- Connect with **fixed wiring**, using **H07 RN-F** cable with a cross-section to VDE 100.
- The control circuit may carry **max. 1 A** alternating current; the control fuse is **630 mA**.
- The flow switch and the 55 °C safety thermostat **must** be included in the control circuit.
- The operating protection of the heating element is **interlocked through the filter pump**.



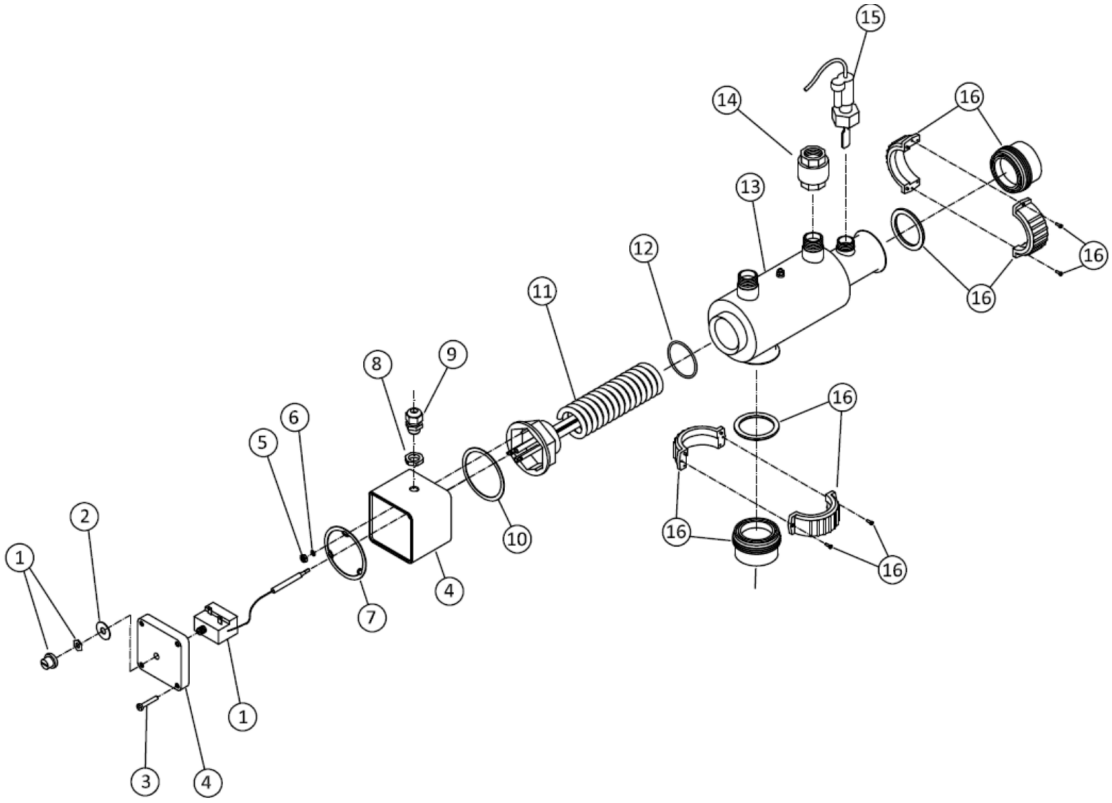
Typical control circuit — left the three-phase supply (E3WX-400V), centre the single-phase supply

8. Operation, Safety Devices & Winterising

Device	Setting	Function
Safety thermostat	55 °C	Cuts the supply on overheating.
Flow switch	—	Allows operation only with sufficient water flow. **Not** to be used as an operating switch.
Filter-pump interlock	—	Cuts the heating element and the heating pump when the filter pump is not running.

- If a limit is exceeded, the safety devices **automatically switch off** the exchanger.
- **Winterising:** the exchanger stays **completely full** of water (above or below water level). If there is a **risk of frost**, it must be drained **completely**.
- In frost conditions the **flow switch must be dismantled** and stored in a frost-proof place.
- Check water chemistry regularly and clean the filter so the minimum flow rate is maintained.
- Replace the O-ring every time the body is opened.

9. Spare Parts



Exploded view — the numbers match the positions in the table

Pos.	Code	Material	Description
1	11 09 28	various	Safety thermostat 55 °C
2	11 09 74	EPDM	Gasket 24×10
3	11 12 04	stainless steel	Self-tapping screw 3.3×19
4	11 38 08	ABS	Control box
5	11 04 04	stainless steel	Nut M4
6	11 04 08	stainless steel	Washer
7	11 09 30	stainless steel	Mounting ring
8	11 33 06	polystyrene	Pressure ring M12 × 1.5
9	11 33 04	polystyrene	Cable gland 3–6.5 mm
10	11 09 62	EPDM	Gasket 63×76
12	11 09 01	NBR 70 Shore	O-ring 44.4 × 3.53
13	12 35 01	stainless steel AISI 316	Housing
14	11 33 11	brass	No-return valve
15	11 09 52	Noryl	Flow switch
16	11 38 09	ABS	Union half split nut Ø 50

Heating elements by model (position 11)

Code	Model
11 09 71	E2WX — 2 kW
11 09 72	E3WX — 3 kW
11 09 73	E5WX — 5 kW
11 09 76	E3WX-400V — 3 kW

Ordering spare parts: always quote the Oxygon product code and the operating voltage, together with the position and code of the spare part.

10. Warranty & Contact

Declaration of conformity: Dual Line products comply with Directives **2014/30/EU** (EMC), **2014/35/EU** (Low Voltage) and **2011/65/EU** (RoHS), applying standards **EN 55014-1**, **EN 55014-2**, **EN 60335-1** and **EN 60335-2-35**. The EU declaration of conformity is available from OXYGON on request.

- The warranty covers defects in material and workmanship under normal use.
- The warranty **does not cover**: frost damage, dry running, storing the exchanger **half-full**, corrosion caused by water outside the limits of the "Water Quality" chapter, incorrect electrical connection or a missing filter-pump interlock, or intervention by unauthorised personnel.
- Every warranty claim requires the purchase document and the product code.
- Consumables (O-rings, gaskets) are excluded.

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ISO Certifications

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

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