

## TECHNICAL SUBMISSION

### TRIGON XL WH 400 IND DHW Generator Gas Fired Ultra Low NOx

#### General Description:

The TRIGON XL WH 400 IND, is one model in a range of seven DHW generators. The appliance incorporate a heat exchanger manufactured from stainless steel and a fully modulating, ultra-low NOx combustion system. The range of seven models provide a heat transfer from **142kW to 540kW @  $\Delta T$  20°C**. The figures are based on maximum modulation rates only. The burners are water cooled, to maximum heat transfer and reduce heat losses. This factor, combined with precise gas to air mixing, results in **extremely low environmental impact. NOx emissions of 23.7mg/kWh (BS EN 15502)**. The water generator can achieve a **Gross Thermal Efficiency of up-to 98.4% at 30% modulation rate**. The calculated **Gross average annual efficiency (RAL 40/30°C) is 99.4%**. This figure is a calculated average based on tests completed at a modulation rate of 63%, 48%, 39% 30% and 13% and is in accordance with **DIN4702/8**.

The TRIGON XL WH 400 IND represents a significant step forward in heating technology, providing a continuous supply of hot water at an efficient recovery rate. With extremely flexible configurations, clever design and the range of models available, this water heater is perfect for a variety of commercial applications. Typical example being industrial processes such as manufacturing plant and cleaning/sterilization processes due to the high set-point temperature.

By combining the unique premix burner with the stainless steel heat exchanger, the appliance is built for challenging working conditions. The appliance is specifically designed for optimised efficiency and performance during its entire lifetime.

The boiler is supplied in one piece, with a fitted robust and stylish outer casing fabricated from stove enabled steel sheet. If access to the plant room is difficult, then our engineers can dismantle the boiler into manageable sections, transport the parts to the desired location and then re-assemble the boilers. This service is a chargeable extra.

The water heater is designed to operate with a DHW storage cylinder for optimised performance. The nominal flow rate must be maintained to prevent over-temperature faults. The nominal flow rate is designed to provide a 17°C temperature rise, with each pass through the heat exchanger.



The **Stainless Steel heat exchanger carries a 5 year guarantee** against faulty manufacture and material defects. Unless otherwise stated within our quotation or this document, **all other components** are covered by a **24 month warranty** that commences **from the date of delivery**. Also included is a **free boiler service** carried out by **Elco engineers after approximately one year of operation**. This **warranty and service is valid only if Elco undertake the boiler commissioning**. If Elco are not asked to commission the boilers, then the warranty is reduced to 12 months and the boiler service is not applicable.

Service and warranty can be extended through the application of an Elco Peace of Mind service and warranty plan to provide for up to ten years of hassle free cover.

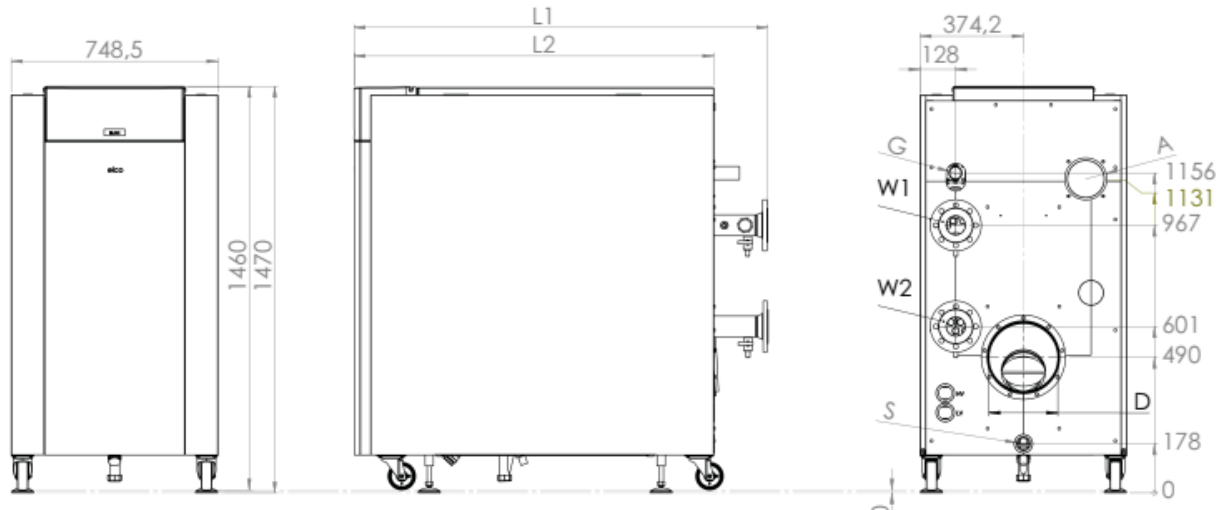
**Compliance with Standards** as appropriate with relevant sections of: Gas Appliance Directive 90/396/EEC & Boiler Efficiency Directive 92/42/EEC.

## Technical Data:

TRIGON XL WH 400 IND DHW Generator		Units	Data
Water	Continuous delivery @ 44°C ΔT	litres/hour	7456
	First hour delivery @ 44°C ΔT	litres	Continuous delivery (litres/hour) @44°C ΔT plus stored volume
	Continuous delivery @ 50°C ΔT	litres/hour	6561
	First hour delivery @ 50°C ΔT	litres	Continuous delivery (litres/hour) @50°C ΔT plus stored volume
	Continuous delivery @ 80°C ΔT	litres/hour	4102
	First hour delivery @ 80°C ΔT	litres	Continuous delivery (litres/hour) @80°C ΔT plus stored volume
	Set-point temperature (maximum)	°C	90
	Water generator operating pressure (min/max)	bar	1/8
Energy	Gross efficiency @ 100%/30%/annual RAL40/30	%	88.6/98.4/99.4
	Standby losses (constant temp 50°C)	kW/24hr	0.3
	Gas input Nominal	kW	431
	Net input - maximum	kW	388.0
	Output to water (min/max)	kW	75.2/381.3
	Gas consumption G20 (10.9 kWh/m <sup>3</sup> ) (min/max)	m <sup>3</sup> /h	7.1/35.6
	Gas consumption G25 (8.34 kWh/m <sup>3</sup> ) (min/max)	m <sup>3</sup> /h	9.3/46.5
	Gas consumption G31 – LPG (12.8 kWh/kg) (min/max)	Kg/h	6.1/30.3
	Required nominal gas pressure G20/G25/G31	mbar	20/25/30 to 50
	Maximum gas pressure	mbar	50
Flue	Sound power (LWA)	dB(A)	77.3
	Approximate flue gas volume (min/max)	m <sup>3</sup> /h	102/502
	Combustion fan – residual pressure (min/max)	Pa	10/400
	Flue gas temperature (min/max)	°C	30/75
Electrical	NOx emissions (BS EN 15502)	mg/kWh	23.7
	Recommended electrical protection	Amps	16
	Run current boiler only (min/max)	Amps	0.23/2.19
	Electrical supply	V/Hz	230/50
Misc	Voltage tolerance (min/max)	V	216.2/253
	Weight empty/full	kg	496/564
	Approximate shipping weight	kg	511

## Dimensions & Clearances:

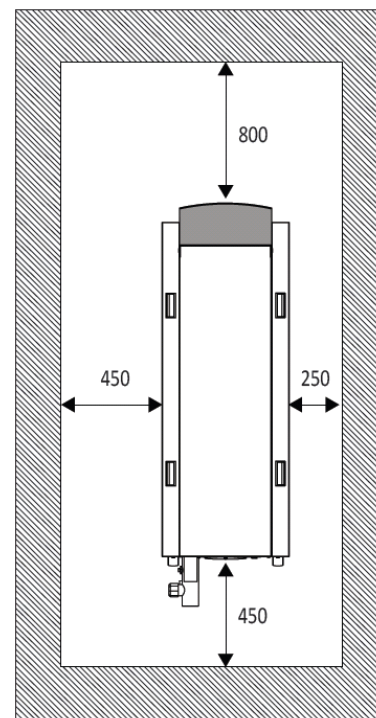
### TRIGON® XL WH 300, 400, 500 & 570



To optimize the position of the boiler in the room it is possible to exchange the position of the electrodes from the right side of the boiler to the left side of the boiler.

This also means that the required space as indicated in the picture will be mirrored.

Normal: Left 250mm / Right 450mm  
Modified: Left 450mm / Right 250mm

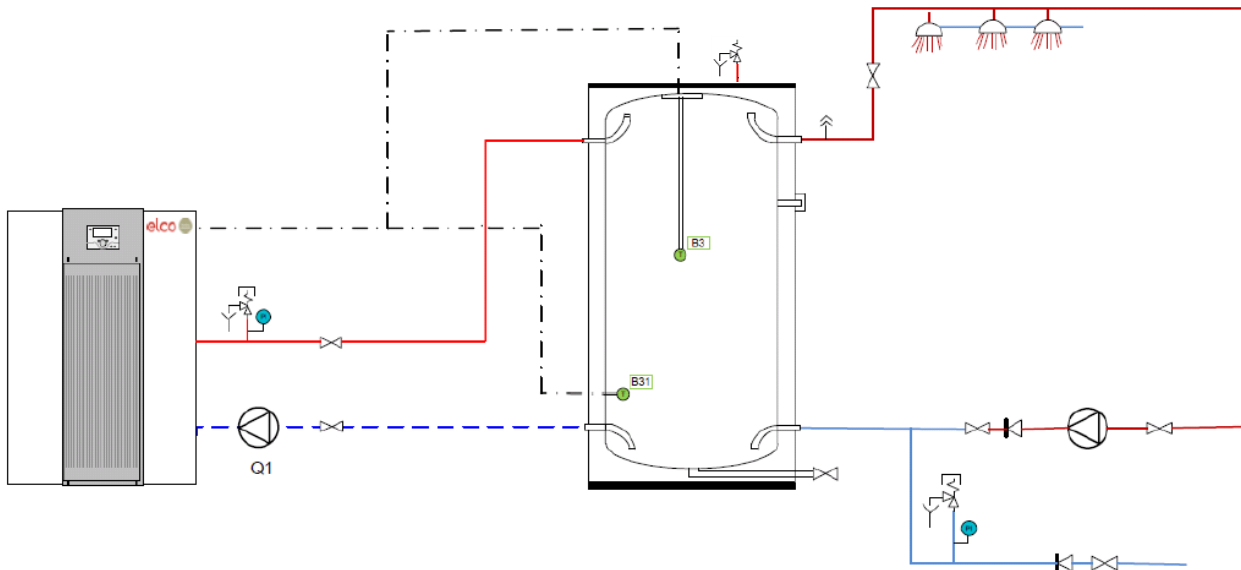


Dimensions mm	TRIGON XL WH 400 IND
L1	1496
L2	1302
A - (combustion air supply)	130Ø
G - (gas connection)	1½"
D - (flue gas exhaust)	250Ø
S - (condense drain)	32
W1 - (primary flow)	DN65 PN16
W2 - (primary return)	DN65 PN16

**General Guidance Schematics:**

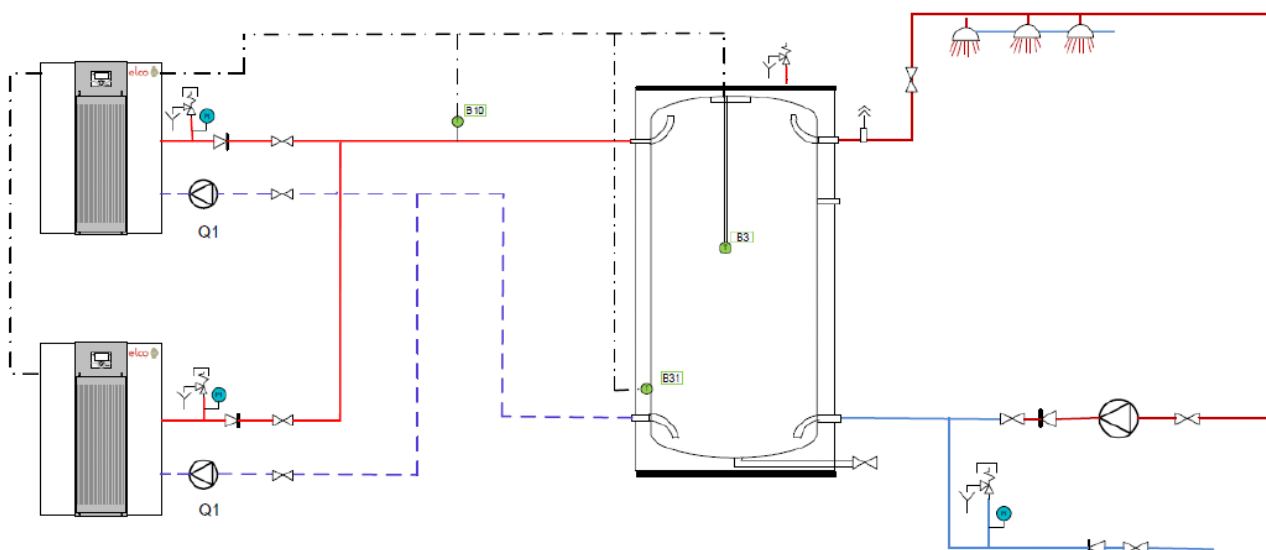
System 1: water heater with buffer tank

Water heater connected to a buffer tank, with the cold water feed and recirculation line combined before returning to the buffer tank. This is the most common way to connect a water heater. Having the cold water feed combined with the recirculation line results in less start/stop sequences of the water heater and creates a stable temperature control in a normal hot water installation.



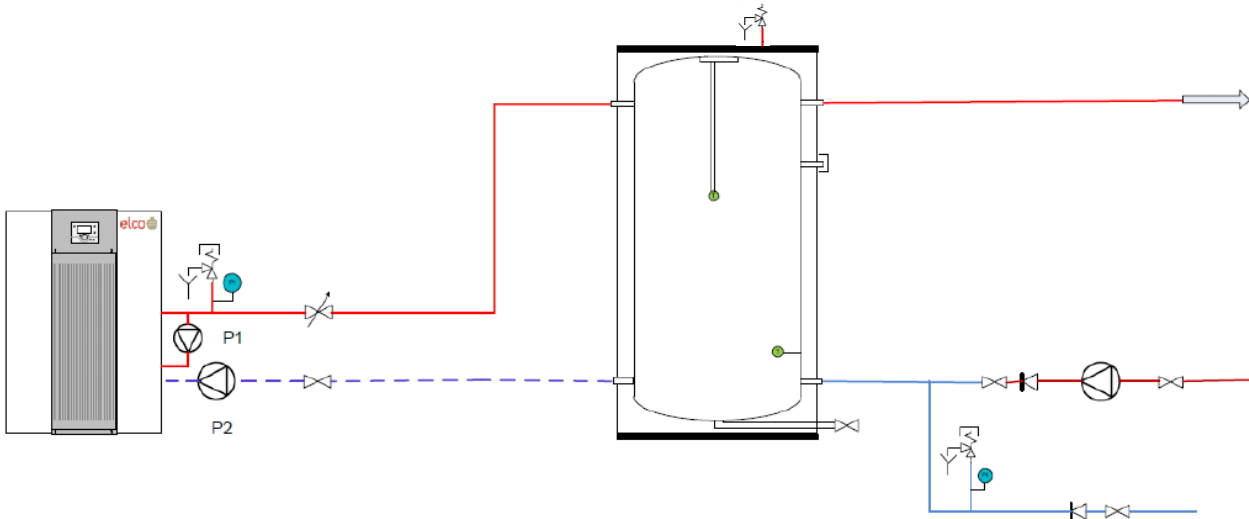
System 2: water heater cascade

When having a constant high demand of hot water, it's useful to install a high capacity water heater (or even a cascade of multiple water heaters) in combination with a small buffer tank. The Buffer tank is only covering the starting delay of the boilers, after that the boilers completely cover the hot water demand constantly.



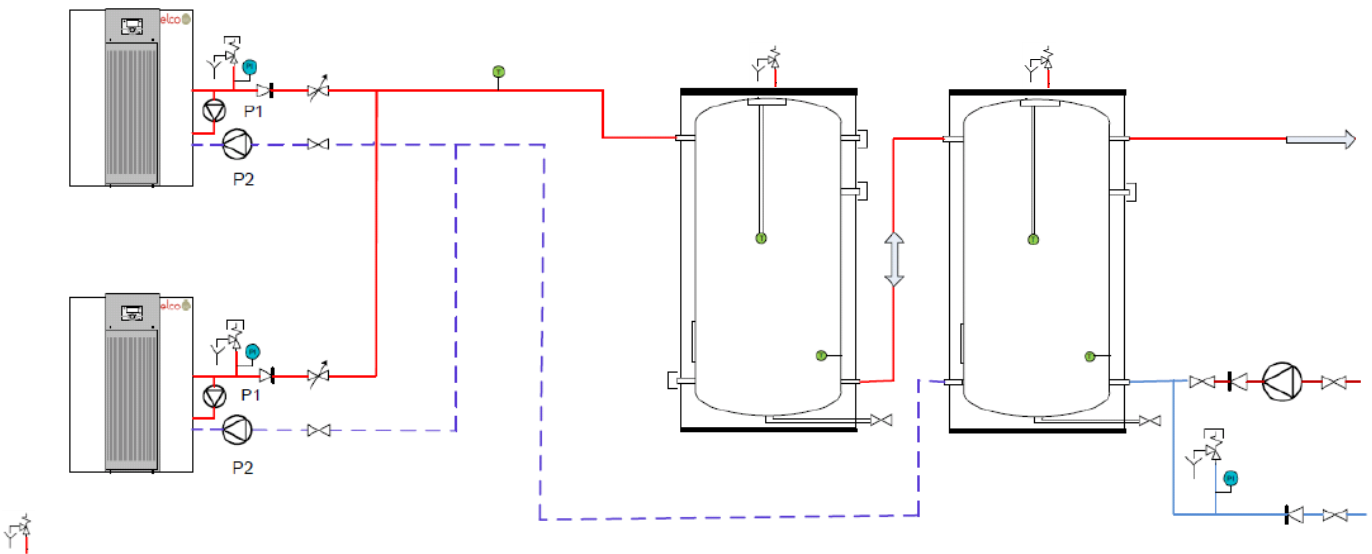
**System 3: bypass water heater with buffer tank**

This system is mainly used in industrial processes, where there is a requirement for direct increase of the water temperature with more than 17K, without having a constant demand. Without the buffer tank the bypass water heater would generate many starts and stops and have a restive regulation.



**System 5: bypass water heater cascade with 2 buffer tanks**

This system is mainly used in industrial processes, where there is a requirement for direct increase of the water temperature with more than 17K, without having a constant demand. Without the buffer tank the bypass water heater would generate many starts and stops and have a restive regulation.



The schematics are for general guidance and do not show all necessary isolation valves. Further guidance is available from Elco Heating Solutions