Floor standing boiler
Output 60 – 200 kW

elco heating solutions

TRIGON® L PLUS

The flexible floor standing commercial boiler

Achieves MAXIMUM BREEAM 2 CREDITS

TRIGON® L PLUS – Ultimate flexibility from a floor standing boiler

Flexible design, outstanding performance

The TRIGON® L PLUS is a new approach to boiler design – one which creates the most flexible product on the market, while redefining commercial heating.

Built-in back-up

Thanks to a unique dual heat exchanger design, TRIGON® L PLUS boilers have built-in redundancy – creating a cascade system within one boiler. The two heat exchangers are capable of working independently from each other, ensuring that a system is never left without highly efficient heating.*

Plug & Play

By integrating main components within the boiler, such as the pump and non return valves, installation time, costs and space required are all significantly reduced. Thanks to the new HMI (Human Machine Interface) and a wide range of accessories, quick installations and commissioning become very simple. With our backpack solution single boilers come already equipped with low loss header or plate heat exchanger.

Simple to service

All key components are accessible from the front of the boiler, making ongoing servicing and maintenance easy, while also reducing time on site.

Designed for future standards

Within the TRIGON® L PLUS is ELCO's unique HEX³ technology, which structures the heat exchanger into three zones.

1) NOx zone: The formation of thermal NOx is reduced to a minimum by low resistance and a short dwell time, as well as rapid cooling of the combustion gases to below 1,000 °C.

2) CO zone: By increasing resistance, the heat exchangers keep the combustion gas at over 600 °C for as long as possible to minimise the formation of carbon monoxide.

3) H_2O condensation zone: With small and densely arranged heat exchanger tubes, maximium heat transfer is achieved in this zone, ensuring optimum efficiency.

Lightweight materials

By utilising the latest lightweight materials, the TRIGON® L PLUS can be easily commissioned, transported and manouvered on site. And thanks to its stainless steel heat exchanger. there are no compromises on durability and robustness. In addition, its low water content design and advanced combustion technology facilitate rapid heat transfer and extremely high efficiencies.

*Applies to double heat exchanger models only

Stay connected and in control

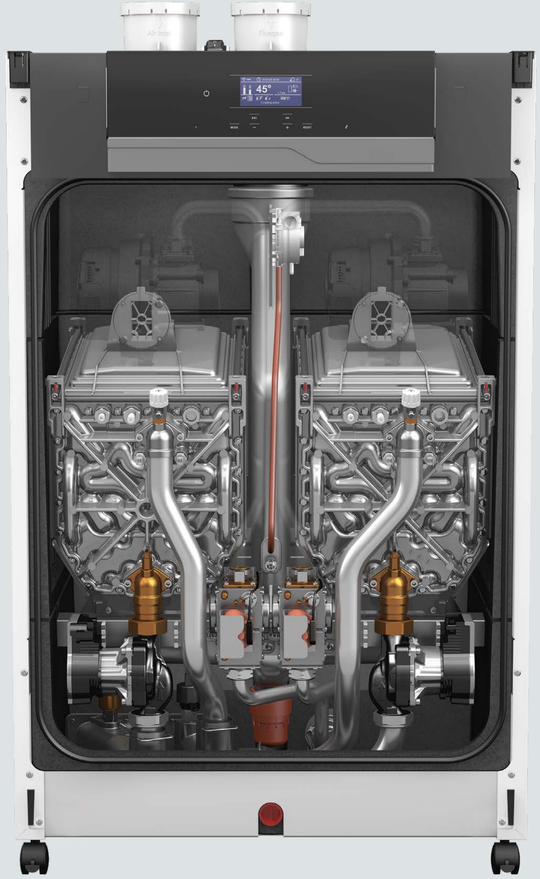
TRIGON® L PLUS is compatible with building management system protocols, including all common industry standards. This allows the boiler to be easily customised to a property's requirements, while still delivering optimal efficiencies.

Modbus LonWorks KNX ASHRAE BACnet

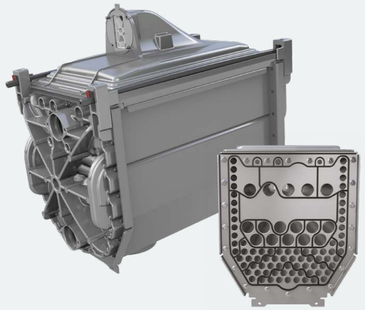
TRIGON® L PLUS – Designed for the future

Ultimate flexibility

The TRIGON® L PLUS combines the highest quality manufacturing with excellent design to deliver a wealth of class leading features.



Key features



Efficient heat transfer
With specially designed hydraulic chambers, water turbulence within the boiler is optimised to ensure maximum heat transfer, while maintaining the lowest possible pressure drop.

Robust and durable stainless-steel heat exchanger and sump
By combining the highest quality materials with an improved heat exchanger design, which is based on 30 years of experience with the OSS heat exchanger, the TRIGON® L PLUS delivers excellent efficiencies for the lifetime of the boiler, as well as incredibly low maintenance schedules. Specially designed smooth tubes ensure direct heat transfer, plus a down-firing arrangement avoids contamination of the heat exchanger.

High modulation range
A high modulation range of 10:1 allows extremely accurate load matching, as well as the ability to adapt to system requirements and maximise boiler efficiency.

Low heat loss and noise emissions
A completely expanded poly propylene insulated body encases the boiler to keep heat loss to an absolute minimum for improved boiler efficiency. Plus, the high quality casing minimises noise emissions to industry leading standards.

Easy handling
After extensive research into materials, the TRIGON® L PLUS is incredibly lightweight while maintaining maximum robustness with its stainless steel heat exchanger. Our transit ramps also make transportation and on site handling easier than ever before.

Simple positioning
Integral cargo wheels, which are height adjustable and can be locked into position, allow the TRIGON® L PLUS to be easily manoeuvered.

Cascade portfolio

Extensive accessories with plug & play functionality

The TRIGON® L PLUS is incredibly flexible and is available in either in-line or back-to-back configurations for up to eight boilers, delivering heat outputs up to 1,6 MW. The systems include all the components necessary to complete the primary heating circuit, with the cascade system specifically designed for quick, simple and effective installation.

In-line cascades

Max. Boilers in cascade	Max. Output
6 In-line	1 MW

Max. Dimensions*		
Width mm	Height mm	Depth mm
4230	1800	1140

Max. Boilers in cascade	Max. Output
8 In-line DUO	1.6 MW

Max. Dimensions		
Width mm	Height mm	Depth mm
7480	1800	1880

Back-to-back cascades

Max. Boilers in cascade	Max. Output
4+4 B2B	1 MW

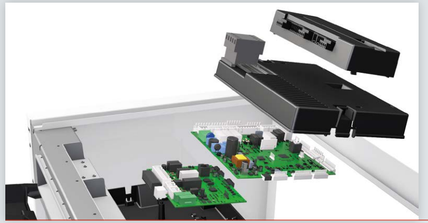
Max. Dimensions*		
Width mm	Height mm	Depth mm
2880	1800	1880

Max. Boilers in cascade	Max. Output
4+4 B2B DUO	1.6 MW

Max. Dimensions		
Width mm	Height mm	Depth mm
4690	1800	1880

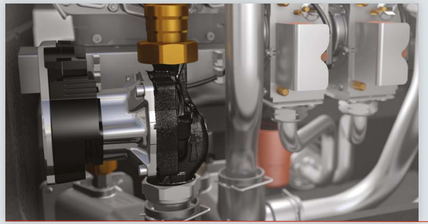
*Excludes low loss header

High quality components



Smart interface with integrated cascade manager

The new control panel is positioned at the top of the boiler to guarantee maximum durability of electronic components, while also providing easy access to all boiler parameters. With a built-in cascade controller, the TRIGON® L PLUS also allows quick and simple system optimisation, routine rotation of the lead boiler, intuitive programming and full diagnostic capabilities. The cascade manager can support up to three mixed heating zones, thanks to an optional additional three-zone clip-in.



Smart and efficient built-in pump

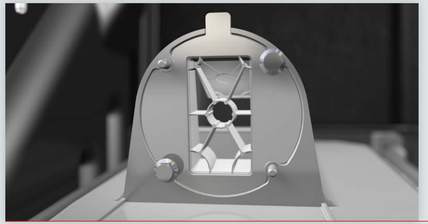
Furthermore, the TRIGON® L PLUS is able to communicate with the pumps and receive feedback on its operation status. This built-in modulating pumps are constantly monitoring the minimum flow rate through the boiler and is able to recognise sudden blockages, preventing damage, guaranteeing optimal working conditions and improving boiler efficiency.

Backpack solution

Single boilers can be supplied with an optional backpack solution, which has a low loss header or plate heat exchanger already integrated. With this approach, installation time and costs are reduced even further, making single units ready to plug & play.

1. Plate heat exchanger

2. Low loss header



Integrated non-return valve

Built-in as standard, a non-return valve allows easy connection of the flue system, without loss of residual fan pressure.

Technical data

TRIGON® L PLUS		60	70	100	120	140	170	200
Seasonal space heating efficiency class[1]	-	A	A	-	-	-	-	-
Nominal heat output at 80/60°C	kW	56.9	65.4	90.2	110.8	130.5	155.5	180.3
Minimum heat output at 80/60°C	kW	14.7	14.6	18.1	14.7	14.6	14.6	18.1
Nominal heat output at 50/30°C	kW	62.5	71.9	98.8	121.9	142.1	170.4	196.9
Minimum heat output at 50/30°C	kW	16.1	16.1	19.8	16.1	15.9	16.0	19.7
Nominal heat input full load Net	kW	57.9	66.7	92.3	112.8	133.2	158.8	184.5
Minimum heat input full load Net	kW	14.9	14.9	18.5	14.9	14.9	14.9	18.5
Efficiency at 80/60°C full load Net/Gross	%	98.2/ 88.5	98.0/ 88.3	97.7/ 88	98.2/ 88.5	98.0/ 88.3	97.9/ 88.2	97.7/ 88
Efficiency at 50/30°C min load Net/Gross	%	108.3/ 97.6	108.2/ 97.5	107.3/ 96.7	108.5/ 97.8	107.1/ 96.5	107.6/ 96.9	107/ 96.4
Efficiency at 30°C return 30% load Net/Gross	%	109.3/ 98.5	109.2/ 98.4	108.9/ 98.1	109.3/ 98.5	109.2/ 98.4	109.1/ 98.3	108.9/ 98.1
Gross seasonal efficiency[2]	%	96.6	96.5	96.2	96.6	96.5	96.4	96.2
Gas consumption max/min nat gas G20	m^3/h	6.13/ 1.57	7.06/ 1.57	9.77/ 1.95	11.94/ 1.57	14.10/ 1.57	16.80/ 1.57	19.52/ 1.95
Gas consumption max/min LPG G31*	kg/h	4.74/ 1.22	5.46/ 1.22	7.56/ 1.51	9.24/ 1.22	10.91/ 1.22	13.01/ 1.22	15.11/ 1.51
Gas inlet pressure max/min nat gas G20	mbar	25/17	25/17	25/17	25/17	25/17	25/17	25/17
Gas inlet pressure max/min LPG G31*	mbar	57.5-42.5 / 35-25						
NOx annual emissions (EN 15502)[3]	mg/kWh	21.7	22.4	22.7	22.7	23.7	22.6	23.6
BREEAM Credits[4]	-	2	2	2	2	2	2	2
Flue gas temperature at 80/60°C full load	°C	62	61	71	62	68	72	71
Max. permissible flue resistance	Pa	161	156	243	143	200	215	265
Water pressure max/min	bar	6,0 / 1,0	6,0 / 1,0	6,0 / 1,0	6,0 / 1,0	6,0 / 1,0	6,0 / 1,0	6,0 / 1,0
Maximum temperature setpoint	°C	90	90	90	90	90	90	90
Water flow at ΔT=20K	l/s	0.68	0.78	1.08	1.32	1.55	1.86	2.16
Residual head of pump at ΔT=20K	kPa	29.6	14.8	0	26.2	6.5	8.0	0
Water flow at ΔT=25K	l/s	0.54	0.63	0.87	1.06	1.25	1.50	1.72
Residual head of pump at ΔT=25K	kPa	49.54	37.34	16.75	47.49	32.06	34.45	15.66
Minimum water flow rate	l/s	0.18	0.17	0.22	0.18	0.17	0.17	0.22
Electrical connection	V	230	230	230	230	230	230	230
Electrical power consumption (230V 50Hz) boiler including pump	W	126	137	120	314	418	464	450
Electrical power consumption (230V 50Hz) boiler excluding pump	W	51	62	33	164	268	290	276
Sound power level	dB(A)	61.5	65.0	60.3	67.3	70.3	67	63.4
Weight (empty)	kg	73	73	80	127	127	132	140
Water content	l	9.3	9.3	13.9	16.8	16.8	21.3	25.8
Dimensions								
Water connections flow/return connections[5]	-	2"	2"	2"	2"	2"	2"	2"
Gas connection[6]	-	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Flue gas connection (concentric)	mm	100/150	100/150	100/150	100/150	100/150	-	-
Room sealed using separate exhaust and combustion air supply connections	mm	2x100	2x100	2x100	2x100	2x100	2x130	2x130
Condensate connection	mm	35.5	35.5	35.5	35.5	35.5	35.5	35.5
Depth	mm	595	595	675	595	595	675	675
Width	mm	530	530	530	690	690	690	690
Height (excl. connections)	mm	1100	1100	1100	1100	1100	1100	1100

1 In accordance with directive 2010/30/EU and regulation (EU) 813/2013

2 In accordance with equation 2 in the Non-Domestic Building Services Compliance Guide

3 NOx values are calculated on GCV

4 BREEAM UK New Construction 2018

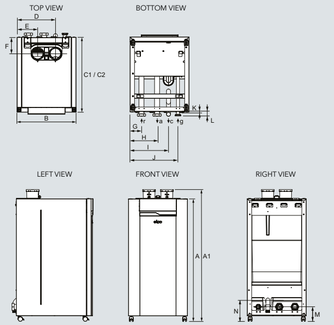
5 With optional Water/Gas Connection Kit the connections size decreases to 1 1/2"

6 With optional Water/Gas Connection Kit the connections size decreases to 1"

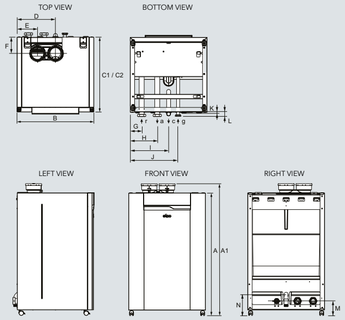
* LPG models available from 2021

Technical drawings

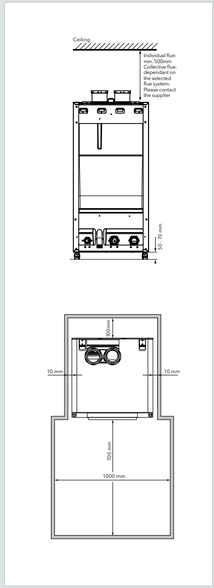
Single heat exchanger (60, 70 & 100)



Double heat exchanger (120, 140, 170 & 200)



Clearances



TRIGON® L PLUS		60	70	100	120	140	170	200
Dimensions								
Boiler height (A)	mm	1100	1100	1100	1100	1100	1100	1100
Boiler height with flue connection (A1)	mm	1185	1185	1185	1185	1185	1185	1185
Boiler width (B)	mm	530	530	530	690	690	690	690
Boiler depth (C1/C2)	mm	595	595	675	595	595	675	675
Flue gas nozzle parallel (D)	mm	345	345	345	345	345	345	345
Air intake parallel (E)	mm	185	185	185	185	185	185	185
Flue gas nozzle (F)	mm	150	150	150	150	150	150	150
Boiler return connection (G)	mm	103	103	103	103	103	103	103
Boiler flow connection (H)	mm	243	243	243	243	243	243	243
Condensate connection (I)	mm	345	345	345	345	345	345	345
Gas connection (J)	mm	430	430	430	430	430	430	430
Condensate connection (K)	mm	15	15	15	15	15	15	15
Boiler return-flow-gas (L)	mm	35	35	35	35	35	35	35
Boiler return-flow-gas (M)	mm	130	130	130	130	130	130	130
Condensate connection (N)	mm	190	190	190	190	190	190	190
Condensate connection (c)	mm	35	35	35	35	35	35	35
Parallel connection	mm	2x100	2x100	2x100	2x100	2x100	2x130	2x130
Boiler Flow (a) / Return (r) connection	-	2"	2"	2"	2"	2"	2"	2"
Gas connection (g)	-	1 ¼"	1 ¼"	1 ¼"	1 ¼"	1 ¼"	1 ¼"	1 ¼"

ELCO – A partner you can rely on

As a specialist partner, you can rely on ELCO's extensive boiler expertise, from planning right through to servicing and maintenance. Our specially trained technicians are available around the clock to help with the installation and commissioning of commercial boilers – offering their experience and assistance when you need it the most.

Commissioning
Our specialists always work together with you in commissioning an ELCO boiler properly to provide a high quality service.

First class service
Whether it is repairs, maintenance or troubleshooting, our service technicians are there for you seven days a week.

Trained and certified service technicians
Our ELCO service technicians are specially trained, qualified and fully equipped with the tools required to ensure boilers are maintained to the highest standards.

More information

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