



Specialist Ovens



Clean Room Ovens (CRW & HTRW)

The Lenton clean room oven range is designed for applications within Class 100 environments. Included is one range at 250°C and a higher temperature range offering 400°C, 500°C or 600°C.

The construction of the clean room oven range incorporates total sealing of the insulation and accommodates a totally enclosed motor fan ensuring the least possible contamination of the clean room.

Standard features include:

- ▶ adjustable chamber ventilation to exhaust any fumes
- ▶ fan assisted air circulation by totally enclosed fan ventilated motor
- ▶ outer case manufactured from zinc coated steel finished with a smooth gloss epoxy/polyester white coating
- ▶ high efficiency heating from mineral insulated metal sheathed elements which pass through seals into the inner chamber
- ▶ low thermal mass insulation material sealed between the inner and outer chamber provides maximum thermal efficiency

- ▶ the polished stainless steel inner chamber is fully externally welded allowing the use of inert gases
- ▶ a silicone rubber door seal minimises heat loss
- ▶ double skin construction ensures a cool safe outer case temperature
- ▶ punched stainless steel shelves are included as standard
- ▶ custom designed ovens with internal filters are available.

NB - where the high temperature unit is used at high temperatures, discolouration/oxidation of the inner lining will occur unless used with an inert atmosphere.



250°C Clean Room Ovens

Model	Max Temp (°C)	Chamber Dimensions (mm)			External Dimensions (mm)			Vol (Litres)	Power (kW)	Temp Stability (°C)	Temperature Variation (°C) at 250°C
		H	W	D	H	W	D				
CRW 30	250	310	310	310	655	460	625	30	1.0	0.2	±3
CRW 70	250	310	470	470	655	620	790	70	1.5	0.2	±3
CRW 130	250	600	470	470	895	620	790	130	2.0	0.2	±4
CRW 180	250	820	470	470	1115	620	790	180	2.5	0.2	±5
CRW 220	250	610	610	610	1130	780	850	220	3.0	0.2	±5
CRW 330	250	915	610	610	1440	780	850	330	4.5	0.2	±5
CRW 450	250	1220	610	610	1750	780	850	450	6.0	0.3	±5
CRW 670	250	1220	915	610	1750	1065	850	670	9.0	0.3	±5
CRW 840	250	1525	915	610	2050	1065	850	840	12.0	0.3	±5
CRW 900	250	1220	1220	610	1750	1420	850	900	12.0	0.3	±5
CRW 1120	250	1525	1220	610	2050	1420	850	1120	15.0	0.3	±5
CRW 1790	250	1220	1220	1220	1750	1420	1450	1790	18.0	0.3	±5

400, 500 and 600°C Clean Room

Model	Max Temp (°C)	Chamber Dimensions (mm)			External Dimensions (mm)			Vol (Litres)	Power (kW)	Temp Stability (°C)	Temperature Variation (°C)
		H	W	D	H	W	D				
HT-28CRW	400	305	305	305	805	560	810	28	1.0	±0.5	±5.0
	500								2.0		
	600								2.0		
HT-95CRW	400	455	455	455	960	810	1010	95	2.0	±0.5	±5.0
	500								3.0		
	600								4.5		
HT-220CRW	400	610	610	610	1105	965	1145	220	3.0	±0.5	±5.0
	500								6.0		
	600								6.0		
HT-500CRW	400	800	800	800	1110	1340	1435	500	7.5	±0.5	±5.0
	500								9.0		
	600								12.0		
HT-1000CRW	400	1000	1000	1000	1310	1530	1635	1000	12.0	±0.5	±5.0
	500								15.0		
	600								18.0		

General Purpose & High Temperature Ovens (GPW & HTW)

The Lenton ranges of general purpose and high temperature ovens are constructed to a proven design, which combines excellent performance and reliability whilst contributing towards energy savings. The general purpose range of ovens is available at 300°C, while the high temperature range offers maximum operating temperatures of 400°C, 500°C and 600°C.

Mild steel hollow section frame with zinc coated mild steel panels is used for the outer case, whilst the inner chamber is constructed from polished stainless steel. Heating is provided by mineral insulated metal sheathed elements. Maximum thermal efficiency is achieved through the use of low thermal mass insulation materials and a resilient woven glass fibre door seal. A powerful fan and air guide system ensure even temperature distribution throughout the work chamber. Adjustable chamber ventilation exhausts smoke and fumes.



General Purpose (GPW models)

All units are offered in a choice of vertical or horizontal format. Vertical models feature a single left-hinged door with the controls at the top, while horizontal models have double side-hinged doors with controls at the right hand side of the unit.

Model	Vertical ovens			Horizontal ovens		
	GPW 220A	GPW 330A	GPW 450A	GPW 220B*	GPW 330B	GPW 450B
Maximum temperature (°C)	300	300	300	300	300	300
Chamber dimensions (mm)	H	610	915	1220	610	610
	W	610	610	610	610	915
	D	610	610	610	610	1220
External Dimensions (mm)	H	1240	1545	1850	910	910
	W	862	862	862	1190	1495
	D	850	850	850	850	850
Volume (litres)	220	330	450	220	330	450
Heat up rates						
Ambient to 300°C	75	80	75	75	80	75
Recovery time (mins) to:						
100°C	12	13	14	12	15	17
(door open for 60 secs)	18	20	21	18	24	24
200°C	24	28	30	24	30	35
300°C						
Performance	±5°C			±5°C		
Temperature uniformity	±0.5°C			±0.5°C		
Temperature stability						
Air exchanges (vents open)						
Volume (litres/hour)	36000	36000	36000	36000	36000	36000
Exchanges/hour	160	110	80	160	110	80
Shelves						
Number supplied	3	4	5	3	3	3
Maximum possible	5	8	11	5	5	5
Max. dist load/shelf (kg)	15	15	15	15	15	20
Maximum load (kg)	45	60	75	45	45	60
Power at 240V (kW)	3	4.5	6	3	4.5	6
Weight (kg)	185	235	285	185	235	285

* - Please note that this model has a single side hinged door

High Temperature Ovens (HTW models)

Many production heating processes, such as tempering, glass annealing, preheating and stress relieving demand the use of an oven capable of efficiently operating at temperatures up to 600°C. Lenton's range of small industrial high temperature ovens has been specifically developed to meet these requirements. Each unit is built to a rugged, well proven design, whilst at the same time combining excellent performance and reliability, contributing towards energy and production cost savings.

Model	400°C	HTW 4/28	HTW 4/95	HTW 4/220
Model	500°C	HTW 5/28	HTW 5/95	HTW 5/220
Model	600°C	HTW 6/28	HTW 6/95	HTW 6/220
Chamber dimensions (mm) h x w x d		305 x 305 x 305	455 x 455 x 455	610 x 610 x 610
External dimensions (mm) h x w x d		805 x 660 x 810	960 x 810 x 1010	1105 x 965 x 1145
Volume (litres)		28	95	220
Heat up time* (minutes)	400°C & 500°C 600°C	60 75	60 75	60 90
Power rating at 240V (kW)	400°C	1	2	3
Power rating at 240V (kW)	500°C	2	3	4.5
Power rating at 240V (kW)	600°C	2	4.5	6

* - to maximum temperature in an empty oven

Options for general purpose and high temperature ovens

- Base to convert bench mounted models into floor standing models. Castors can be provided for easy movement
- Explosion relief panels
- Exhaust fan
- 7 day/24 hour timer
- Process timer with automatic switching at set temperature
- Single or multi-point chart recorders
- Extensive range of programmers
- 50mm shelf positions and /or additional shelves
- Adjustable over-temperature protection
- 3-phase supply on certain models



Large General Purpose Ovens (LGPW)

Lenton's LGPW range of industrial batch ovens sets the standard for a wide range of industrial processing applications.

The ovens have been designed to meet the rigorous operating conditions encountered in every day production use, whilst still retaining optimum thermal efficiency. Each unit is built to a rugged and well-proven design. The use of advanced components provides excellent performance and reliability, making these versatile ovens the best choice for a wide range of industrial heating applications.

Standard chamber capacities range from 500 – 14,000 litres, at temperatures up to 250°C, 425°C and 625°C. The comprehensive range of sizes and extended package of options ensure that most requirements can be met with a standard unit. However, Lenton offers a custom design and build service to suit individual requirements.

A long working oven life is ensured by a ferritic stainless steel interior. The external construction is of mild steel section clad with zinc coated steel sheet. High thermal efficiency is achieved through the use of low thermal mass insulation. Air circulation is critical for efficient and uniform heating and horizontal airflow is achieved via heavy-duty impellers at 1400rpm driven by three phase electric motors. Vertical airflow is available on selected models if required. Temperature uniformity of +5°C to within 100mm of the walls and roof and 150mm of the doors and floor is achieved (in an empty oven).

Most models are fitted with side-hinged doors, either single or double, depending on the size of the oven. Vertically rising doors are fitted as standard on large volume 600°C ovens (over 1m³) and are available on other models as an option.

Options:

- ▶ Shelf runners (included as standard on models up to 1000 litres)
- ▶ Shelves - standard or heavy duty
- ▶ Vertically rising door - manual or powered
- ▶ Explosion relief panels
- ▶ Exhaust fan
- ▶ Exhaust flow proving switch
- ▶ 304 grade stainless steel interior
- ▶ Extensive range of programmers
- ▶ Single or multi-point chart recorders
- ▶ 7-day time switch
- ▶ Multi-range process timer
- ▶ Access ports for cables and pipes
- ▶ Trolleys
- ▶ Viewing windows - subject to temperature limitation
- ▶ Interior light - subject to temperature limitation



MODEL	Maximum temperature (°C)	Volume (litres)	Volume (litres)	Maximum power (kW)	Internal dimensions (mm)		
					H	W	D
LGPW 2/500	250	500	500	9	800	800	800
LGPW 2/730	250	730	730	9	900	900	800
LGPW 2/1000	250	1000	1000	12	1000	1000	1000
LGPW 2/1500	250	1500	1500	15	1500	1000	1000
LGPW 2/1750	250	1750	1750	18	1200	1200	1200
LGPW 2/2160	250	2160	2160	18	1500	1200	1200
LGPW 2/3370	250	3370	3370	24	1500	1500	1500
LGPW 2/5830	250	5830	5830	36	1800	1800	1800
LGPW 2/8000	250	8000	8000	42	2000	2000	2000
LGPW 2/13820	250	13820	13820	60	2400	2400	2400
LGPW 4/500	425	500	500	9	800	800	800
LGPW 4/730	425	730	730	12	900	900	900
LGPW 4/1000	425	1000	1000	18	1000	1000	1000
LGPW 4/1500	425	1500	1500	21	1500	1000	1000
LGPW 4/1750	425	1750	1750	24	1200	1200	1200
LGPW 4/3370	425	3370	3370	36	1500	1500	1500
LGPW 4/5830	425	5830	5830	48	1800	1800	1800
LGPW 4/8000	425	8000	8000	54	2000	2000	2000
LGPW 6/500	625	500	500	15	800	800	800
LGPW 6/730	625	730	730	18	900	900	900
LGPW 6/1000	625	1000	1000	24	1000	1000	1000
LGPW 6/1500	625	1500	1500	30	1500	1000	1000
LGPW 6/1750	625	1750	1750	36	1200	1200	1200
LGPW 6/3370	625	3370	3370	48	1500	1500	1500
LGPW 6/5830	625	5830	5830	72	1800	1800	1800

Temperature Control Systems

A choice of control systems is available including controllers which simply heat up the oven and hold at one temperature indefinitely as well as more complex programming systems. Access to parameters is simple and easy to understand and is customised to present only those parameters which need to be viewed or adjusted.

TLK 38 Controller

The TLK is available as either an on/off or three term POID micro-processor controller.

Eurotherm 3508P1

The Eurotherm 3508P1 is an advanced setpoint programming temperature controller with twenty segments, any of which may be a ramp, a step or a dwell. It is housed in a quick release 1/8 din size measuring 48 x 96mm high, and features large numeric and text displays to provide additional information of current status to the user. It provides the same precise control as the 3216CC or 3216P1 models.

Other Options

Additional control systems can be supplied including cascade control, multi-segment programmers and process timers.

Communications Software

A choice of communications software is available. Please ask for details.



Eurotherm 3216P1

The Eurotherm 3216P1 is an advanced setpoint programming temperature controller with eight segment-pairs, each a ramp and a dwell. (This configuration of a ramp followed by a dwell cannot be altered). It is housed in a compact, quick release 1/16 din size, measuring 48 x 48mm, and features scrolling text to provide additional information of current status to the user. It provides precise control with an advanced PID control algorithm giving stable "straight - line" control of the process. Power feedback is used to stabilise the output power and hence the controlled temperature against supply voltage fluctuations. The controller continually corrects for drift and this gives high stability and rapid response to process changes.



Overtemperature Protection

An independent alarm instrument type 2132 and thermocouple are incorporated into the heating element circuit and, in the case of overtemperature of the oven, power to the elements is switched off with lockout action so shutting down the oven safely.



Standard Electrical Supply

When ordering, always quote the model, controller and the preferred type of electrical supply from the list. Please indicate the frequency (50 or 60 Hertz) and number of phases. For 3-phase supplies (where applicable), please state whether a neutral is available (if so, please quote both the phase-to-phase and the phase-to-neutral voltages, eg 380.220V). Typical single phase voltages are 100, 110, 200, 208, 220, 240 and 254V. 3-phase voltages without neutral are typically 220, 380, 415 and 440V. 3-phase voltages with neutral are typically 220/127, 380/220, 415/240 and 440/254.

Note

As a result of continuous product development, we reserve the right to change specifications and illustrations. In the unlikely event of one of our standard products not meeting your requirements, we have the capability to design and manufacture a unit specifically tailored to meet your needs.

Welland manufactures in compliance with the relevant safety standards to BS EN 61010-1: 1993 & 61010-2-010: 1995. All products carry the CE mark which indicates compliance with all relevant European safety directives; ie Low Voltage Directive and ElectroMagnetic Compatibility directive.

Lenton also manufactures a range of chamber & tube furnaces up to 2000°C. Please contact us for further information.

Lenton
FURNACES



P.O. Box 2031, Hope Valley S33 6BW ENGLAND

Tel: +44 (0)1433 621515

Fax: +44 (0)1433 623600

e-mail: sales@lentonfurnaces.com

www.lentonfurnaces.com

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