Delivering Excellence in

LABORATORY AND INDUSTRIAL FURNACES, OVENS & THERMAL ANALYSERS

- Chamber Furnaces
- Tube Furnaces
- Ovens
- Customized Furnaces & Ovens
- Coal and Coke Testing Equipment
- Thermal Analysers

Ver 03.24

www.elitefurnaces.com

Company Philosophy

Since its foundation in 1998 Elite Thermal has focused on providing customer satisfaction through its philosophy of supplying quality products at competitive prices, supported by high level customer service.

This strategy has enabled the Elite Thermal brand to develop strong recognition in both UK and International markets.

Since its inception Elite Thermal has developed an extensive portfolio of standard and custom designed electric furnaces and ovens which are used widely throughout the world in diverse and demanding thermal process applications.

Elite Thermal's main strengths are:-

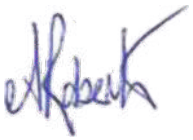
High level customer service, from the initial enquiry through to supply & installation of the equipment, and beyond.

Our team has 40 years of furnaces design experience enabling us to develop innovative designs tailored to meet the ever increasing demands of cutting-edge advanced materials research and development.

Elite Thermal recognises the importance of customer trading relationships, in that, once they are established Elite Thermal actively seeks to nurture and cultivate them into mutually beneficial long term partnerships.

By trading with Elite Thermal you can be assured that YOU, our customer, will be our main focus of attention.

Yours Sincerely



Alf Roberts
Managing Director

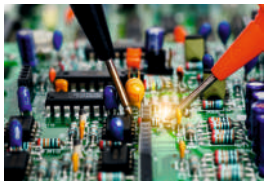
Testimonials

> Elite Thermal Furnaces have provided an excellent bespoke service with approachable, knowledgeable and responsive staff from initial sales enquiry stage through to design, manufacture, commissioning and after-sales care. You have listened and understood our unique and specific requirements and turned them into quality, reliable and competitively priced furnaces. "We would highly recommend Elite Thermal to other customers and have passed details to our technology partners and customers"
>
> Stephen Kyle-Henney, Managing Director
> TISICS, Aerospace Company in Famborough, England

> Elite Thermal Systems have been our go-to supplier for bespoke furnace equipment for over 15 years. Their staff are professional, knowledgeable and reliable and have built a range of equipment for us ranging from tube furnaces to multi-furnaces cyclic hot-corrosion rigs that are used to generate critical lifing data for the aerospace industry.
>
> Dr. Simon Gray, PhD Meng
> Cranfield University, UK

Servicing the needs of Scientific research and Industrial processes worldwide

Innovative solutions for your Applications
















- Aerospace
- Automotive
- Cement Industry
- Ceramics
- Coal Industry
- Education
- Electronics
- Finishing Industry
- Glass
- Materials Testing
- Metals Industry
- Nuclear
- Petrochemicals
- Quality Assurance
- Research
- Superconductivity

Delivering Excellence through technical innovation & people

Contents

Electric Furnaces & Ovens from 80 °C to 2000 °C

Contents

Electric Furnaces & Ovens from 80 °C to 2000 °C

Laboratory & Industrial Chamber Furnaces & Ovens up to 2000 °C

Elite Thermal offers a wide range of standard and custom-designed chamber furnaces and ovens that are widely used in educational, research and industrial organisations throughout the world.

This design and engineering capability enables Elite Thermal and its representatives to service contracts ranging from laboratory scale through full-scale batch and continuous production equipment.

Elite Thermal offers a wide selection of chamber sizes in front loading, top loading, bottom loading, vacuum condition and numerous customizations for its chamber furnaces and oven products. These products are intended for usage in the temperature range of 80°C to 2000°C.

Standard and Customized Chamber Furnaces & Ovens for Research & Industrial Applications

Air Re-circulating Furnaces — 750° C Maximum


BAF7/15

BAF 750° C - The BAF air re-circulating furnace provides good temperature uniformity and rapid thermal transfer to the load at lower temperatures.

Applications include annealing, stress relieving, tempering and normalising.

Standard Features:

- Available in 15, 31 & 45 litre capacities as standard, with larger units made to customer specifications
- Stainless steel liner
- MI heating elements, which are isolated from the liner
- The external case depth dimensions include the rear-mounted motor

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BAF7/15	750	700	220x220x305	727x582x770	15	3.0	230V	1	88
BAF7/31	750	700	250x250x500	892x803x865	31	6.0	230V	1	130
BAF7/45	750	700	300x300x500	892x803x865	45	6.0	230V	1	135

Economy Chamber Furnaces — 1100° C Maximum


BCF11/3, BCF11/8, BCF11/15 & BCF11/25 with drop down door

BCF11 - This model has been developed to meet the basic laboratory needs at economical prices

Standard Features:

- BCF11 is suitable for light-duty general laboratory work and provides satisfactory performance for many firing applications
- 3, 8, 15, 25, 30 & 45 litre are available chamber volumes
- BCF11/3, BCF11/8, BCF11/15 & BCF11/25 models come with Drop down door with air gap to minimise the external temperature
- BCF11/30 & BCF11/45 models come with vertical lift door that keeps heated surface away from the user
- All furnace models are provided with Positive break door safety switch that isolates chamber from power supply when door is open
- This furnace comes with a controller having single ramp & set point and process timer


BCF11/30 & BCF11/45 with vertical door

Options:

- Over temperature protection controller
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BCF11/3	1100	1100	90x150x235	490x433x446	3	2.0	230	1	36
BCF11/8	1100	1100	180x190x235	490x433x446	8	2.0	230	1	41
BCF11/15	1100	1100	220x220x310	585x550x510	15	3.0	230	1	62
BCF11/25	1100	1100	250x250x400	780x632x692	25	6.0	230	1	67
BCF11/30	1100	1100	200x300x500	892x803x740	30	6.0	230	1	115
BCF11/45	1100	1100	300x300x500	892x803x740	45	6.0	230	1	120

Custom Designed For all Chamber furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

weights given are indicative only

General Purpose Chamber Furnaces 1200° C Maximum

BCF12 - The BCF model has been developed to meet the General purpose applications

BCF12/5

Standard Features:

- BCF12 is suitable for light-duty general laboratory work and provides satisfactory performance for many firing applications
- 3, 8, 15, 25, 30 & 45 litre are available chamber volumes
- Hard ceramic hearth tile is fitted as standard
- Vertical door keeps heated surface away from the user
- Positive break door safety switch isolates chamber from power supply when door is open
- This furnace comes with a controller having single ramp & set point and process timer

Options:

- Over temperature protection controller
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BCF12/3	1200	1200	90x150x235	675x532x520	3	2.0	230	1	36
BCF12/8	1200	1200	180x190x235	675x532x520	8	2.0	230	1	41
BCF12/15	1200	1200	220x220x310	675x532x520	15	3.0	230	1	62
BCF12/25	1200	1200	250x250x400	780x632x692	25	6.0	230	1	67
BCF12/30	1200	1200	200x300x500	892x803x740	30	6.0	230	1	115
BCF12/45	1200	1200	300x300x500	892x803x740	45	6.0	230	1	120

General Purpose Chamber Furnaces 1300° C Maximum

BCF13 – The BCF models are fast heating furnaces for general purpose use, where clean operating conditions prevail. Good temperature uniformity is achieved by the use of open heating elements retained in low thermal mass chamber wall panels.

BCF13/5

Standard Features:

- Vertical lifting door keeping the hot face of the door away from the operator
- Positive break door safety switch isolates chamber from power supply when door is open

Options:

- Over temperature protection controller
- Multi segment, multi program storage controllers

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BCF13/3	1300	1250	90x150x235	675x532x520	3	2.0	230	1	30
BCF13/5	1300	1250	150x150x200	680x530x550	5	2.0	230	1	36
BCF13/8	1300	1250	180x190x235	675x532x520	8	2.0	230	1	41
BCF13/12	1300	1250	200x200x300	727x582x645	12	3.0	230	1	54
BCF13/15	1300	1250	220x220x310	727x582x645	15	3.0	230	1	62
BCF13/25	1300	1250	250x250x400	780x632x692	25	6.0	230	1	67
BCF13/30	1300	1250	200x300x500	892x803x740	30	6.0	230	1	115
BCF13/42	1300	1250	305x305x450	892x802x740	42	6.0	400	3	117
BCF13/45	1300	1250	300x300x500	892x803x740	45	6.0	400	3	120

weights given are indicative only

Muffle Furnaces — 1100° C Maximum

BMF11/7

BMF11 is designed for general purpose as well as ashing applications and features a pre-heated airflow system and large chimney to ensure good combustion conditions within the chamber

Standard Features:

- 3, 7 &15 litre are available chamber volumes
- Drop down door with air gap to minimise the external temperature
- This furnace comes with a controller having single ramp & set point and process timer

Options:

- Over temperature protection controller
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BMF11/3	1100	1050	90x150x235	490x433x446	3	2.0	230	1	36
BMF11/7	1100	1050	127x178x305	490x433x446	7	2.5	230	1	39
BMF11/15	1100	1050	220x220x310	585x600x540	15	3.0	230	1	62

Muffle Furnaces — 1200° C Maximum

BMF12/7

BMF12 is designed for general purpose as well as ashing applications and features a pre-heated airflow system and large chimney to ensure good combustion conditions within the chamber

Standard Features:

- 3, 7 & 15 litre are available chamber volumes
- Vertical lift door that keeps heated surface away from the user
- Positive break door safety switch that isolates chamber from power supply when door is open
- This furnace comes with a controller having single ramp & set point and process timer

Options:

- Over temperature protection controller
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BMF12/3	1200	1150	90x150x235	675x532x520	3	2.0	230	1	36
BMF12/7	1200	1150	127x178x305	675x532x520	7	2.5	230	1	39
BMF12/15	1200	1150	220x220x310	675x532x520	15	3.0	230	1	62

Product Quality All Elite Thermal Chamber Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

weights given are indicative only

General Purpose Chamber Furnaces — 1200° C Maximum


BSF12/6

BSF – The BSF furnace is designed for general laboratory use, its design makes it ideal for treating heavier loads, and the processing of material that could contaminate floor mounted heating elements through spillage

Standard Features:

- Vertical door keeps heated surface away from the user
- Positive break door safety switch isolates chamber from power supply when door is open
- This furnace comes with a controller having single ramp & set point and process timer
- BSF models use heating elements embedded in slabs
- 2 sided heating
- Replaceable ceramic hearth tile
- Ideal for ashing foods, plastics, coal & other hydrocarbon materials

Options:

- 4 side heating elements are available for when heavier loads or metal retorts are fitted
- Over temperature protection controller
- Multi segment, multi program storage controllers

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BSF12/4	1200	1150	101x152x254	675x532x520	4	1.5	230	1	47
BSF12/6	1200	1150	127x152x305	727x582x645	6	2.0	230	1	54
BSF12/10	1200	1150	127x178x406	727x582x645	10	2.5	230	1	64
BSF12/15	1200	1150	220x220x310	727x582x645	15	3.0	230	1	66
BSF12/22	1200	1150	203x228x454	780x632x692	22	5.0	230	1	125
BSF12/30	1200	1150	200x300x500	892x803x740	30	5.0	230	1	130
BSF12/45	1200	1150	300x300x500	892x803x740	45	6.0	230	1	132

Ashing feature:

For Ashing of samples, the furnace is designed with a pre-heated airflow system and a large chimney to ensure good combustion conditions within the chamber while facilitating the adequate air exchange.

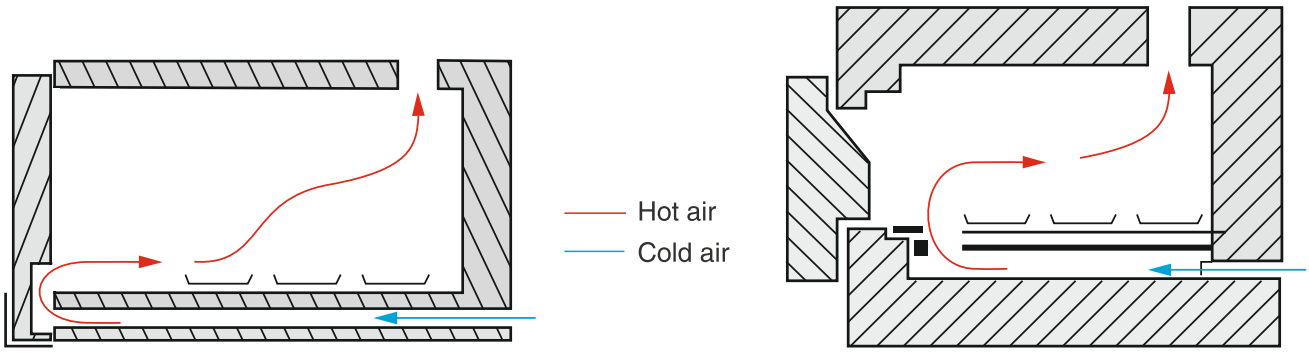


Image A **Image B**

Images A & **B** are the illustration of ashing feature showing how the incoming air is pre-heated before passing over samples.

Ashing feature is available in BMF as well as in BSFA model furnaces **(Please refer to Page No. 9 & 11).**

Custom Designed For all Chamber furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

weights given are indicative only

Laboratory Ashing Furnaces — 1200° C Maximum

BSFA – The BSFA furnace is designed for ashing applications. Its design makes it ideal for treating heavier loads, and the processing of material that could contaminate floor mounted heating elements through spillage

BSF12/6A

Standard Features:

- An ashing feature which provides combustion conditions within the chamber, and improved process fume removal from the chamber
- Vertical door keeps heated surface away from the user
- Positive break door safety switch isolates chamber from power supply when door is open
- BSF models use heating slabs
- 2 sided heating
- Replaceable ceramic hearth tile
- Ideal for ashing foods, plastics, coal & other hydrocarbon materials
- This furnace comes with a controller having single ramp & set point and process timer

Options:

- 4 side heating elements is available for when heavier loads or metal retorts are fitted
- Over temperature protection controller
- Multi segment, multi program storage controllers

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BSF12/4A	1200	1150	101x152x254	675x532x520	4	1.5	230	1	55
BSF12/6A	1200	1150	127x152x305	727x582x645	6	2.0	230	1	62
BSF12/10A	1200	1150	127x178x406	727x582x645	10	2.5	230	1	73
BSF12/15A	1200	1150	220x220x310	727x582x645	15	3.0	230	1	75
BSF12/22A	1200	1150	203x228x454	780x632x692	22	5.0	230	1	137
BSF12/30A	1200	1150	200x300x500	892x803x740	30	5.0	230	1	146
BSF12/45A	1200	1150	300x300x500	892x803x740	45	6.0	230	1	148

Rapid Heating Chamber Furnaces — 1200° C Maximum

BCFR12 – This model has been developed for applications when rapid heating/cooling are required. This design is ideal for light/medium duty applications, but is not suitable for applications where the sample is large with a high mass.

BCFR12/5

Standard Features:

- Available in 5,15 & 25 litre capacities as standard, with larger units made to customer specifications
- Heating is by free radiating wire elements located on 2 sides and roof of the chamber
- This furnace comes with a controller having single ramp & set point and process timer
- Rapid thermal response from free radiating coiled wire elements
- Vertical door keeps heated surface away from the user

Options:

- Over temperature protection controller
- Multi segment, multi program storage controllers

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BCFR12/5	1200	1100	150x150x150	685x532x515	5	2.75	230	1	45
BCFR12/15	1200	1100	230x230x300	727x582x645	15	5.0	230	1	58
BCFR12/25	1200	1100	250x250x400	777x632x692	25	9.0	400	1	72

weights given are indicative only

Rapid Heating Chamber Furnaces — 1300° C Maximum


BCFR13/5

BCFR13 – This model has been developed for applications when rapid heating/cooling is required. This design is ideal for light/medium duty applications, but is not suitable for applications where the sample is large with a high mass.

Standard Features:

- Available in 5,15 & 25 litre capacities as standard, with larger units made to customer specifications
- Heating is by free radiating wire elements located on 2 sides and roof of the chamber
- This furnace comes with single ramp & set point and process timer
- Rapid thermal response from free radiating coiled wire elements
- Vertical door keeps heated surface away from the user

Options:

- Over temperature protection controller
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BCFR13/5	1300	1200	150x150x150	685x532x515	5	2.75	230	1	45
BCFR13/15	1300	1200	230x230x300	727x582x645	15	5.0	230	1	58
BCFR13/25	1300	1200	250x250x400	777x632x692	25	9.0	400	1	72

Top Loading Chamber Furnaces — 1200° C Maximum


TLCF12/5

TLCF – This is suited to applications which involves heavy loads, where samples are contained in tall crucibles, or where there is a danger of spillage onto the base of the chamber

Standard Features:

- Relative ease and safety for the operator
- These heating elements are robust cast refractory panels mounted on all sides
- Exhaust port to assist fumes removal is fitted to the furnace door
- A lever allows the operator to open and close top opening door safely and conveniently

Options:

- Over temperature protection controller
- Monitoring probes
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
TLCF12/5	1200	1150	260x155x130	670x550x425	5	2.5	230	1	88
TLCF12/10	1200	1150	365x185x155	770x575x450	10	3.0	230	1	130
TLCF12/25	1200	1150	450x250x225	875x625x550	25	6.0	230	1	135
TLCF12/125	1200	1150	620x450x450	1175x950x950	125	18.0	400	3	UR

Product Quality All Elite Thermal Chamber Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

weights given are indicative only

High Temperature Chamber Furnaces 1400° C, 1500° C and 1600° C Maximum

BRF15/5

BRF – The BRF14, 15 & 16 models form a comprehensive range of high thermal efficiency, rapid heating chamber furnaces with operating temperatures up to 1400° C, 1500° C and 1600° C.

Standard Features:

- The BRF14, BRF15 & BRF16 models are heated by silicon carbide rod elements
- Silicon carbide heating elements provide long life and are able to withstand the stress of intermittent operation
- Vertical lift door keeps hot face away from user
- A door switch isolates power from the heating elements whenever door is opened for operator safety

Options:

- Electrically operated doors are available as chargeable option (E)
- Multi segment, multi program storage controllers
- Over temperature protection controller is optional

BRF16/35 (with side opening door)

Note:

- Side-opening doors are also available if needed

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BRF14/5	1400	1400	150x140x250	730x580x645	5	4.5 (12.6)	230	1	58
BRF14/10	1400	1400	190x180x310	780x630x692	10	7.5 (14.4)	230	1	74
BRF14/15	1400	1400	225x225x300	892x802x740	15	8.5	230	3	100
BRF14/27	1400	1400	290x270x340	892x802x740	27	12.0 (21.6)	400	3	110
BRF15/5	1500	1500	150x140x250	730x580x645	5	4.5 (12.6)	400	3	58
BRF15/10	1500	1500	190x180x310	780x630x692	10	7.5 (14.4)	400	3	74
BRF15/15	1500	1500	225x225x300	892x802x740	15	8.5	400	3	100
BRF15/27	1500	1500	290x270x340	892x802x740	27	12.0 (21.6)	400	3	110
BRF16/5	1600	1600	150x140x250	730x580x670	5	5.0 (12.8)	400	3	59
BRF16/10	1600	1600	190x180x310	780x630x715	10	10.0 (13.2)	400	3	74
BRF16/15	1600	1600	225x225x300	1050x950x823	15	11.0	400	3	100
BRF16/26	1600	1600	255x300x340	1050x950x823	26	14.0 (26.2)	400	3	110
BRF16/35	1600	1600	255x300x465	1475x1100x1000	35	16.0	400	3	380

Custom Designed For all Chamber furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

weights given are indicative only

High Temperature Chamber Furnaces 1700° C and 1800° C Maximum

BRF – The BRF17 & 18 models form a comprehensive range of high thermal efficiency, rapid heating chamber furnaces with operating temperatures up to 1700° C and 1800° C.


BRF/17

Standard Features:

- The BRF17 models are heated by Molybdenum Disilicide elements
- The BRF18 models are heated by Molybdenum Tungsten Disilicide elements
- Molybdenum Disilicide and Molybdenum Tungsten Disilicide provide long life and are the preferred heating elements for 1700° C and 1800° C.
- Over temperature protection is included in the standard specification for 1700 & 1800 models
- Vertical lift door keeps hot face away from user
- A door switch isolates power from the heating elements whenever door is opened for operator safety


BRF18/5M

Options:

- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BRF17/5M	1700	1700	160x150x215	635x900x695	5	4.4	230	1	128
BRF17/5E	1700	1700	160x150x215	635x900x695	5	4.4	230	1	128
BRF17/12M & E	1700	1700	230x230x230	1550x850x740	12	7.6	230	1	230
BRF17/27E	1700	1700	300x300x300	1600x880x800	27	12.0	400	3	316
BRF18/5M	1800	1800	170x150x200	635x900x785	5	4.7	230	1	170
BRF18/5E	1800	1800	170x150x200	635x900x785	5	4.7	230	1	170
BRF18/13M/E	1800	1800	220x200x300	1600x880x800	13	9.0	230	1	287
BRF18/18E	1800	1800	220x200x400	1600x880x800	18	11.6	230	1	365
BRF18/27E	1800	1800	300x300x300	1600x1050x880	27	15.0	400	3	494

M: Manually operated door option E: Electrically operated door option

Product Quality All Elite Thermal Chamber Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

weights given are indicative only

Bottom Loading Chamber Furnaces 1700° C and 1800° C Maximum

BEB17 & 18

BEB – The electrically operated elevator hearth facilitates smooth loading / unloading of the sample/crucible.
The design provides a fast hearth ascent/decent, therefore making it ideal for rapid load transfer applications such as glass melting and firing of advanced ceramics. All instrumentation and control gear is housed in a separate free standing console.

Standard Features:

- Rapid heating & cooling cycles can be achieved through raising and lowering the hearth
- 4 side heating provides good temperature uniformity heated by Molybdenum Disilicide/Molybdenum Tungsten Disilicide elements

Options:

- Pneumatic elevator mechanism
- Compatible crucibles
- Over temperature protection controller
- Flow meters for air or inert gases
- Multi segment, multi program storage controllers
- Ceramic liners are available for use where corrosive fumes are generated or for use with protective atmospheres

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase	Net Wt. (kg)
BEB17/5	1700	1700	170x170x170	1060x550x650	5	5.0	240	1	190
				Control Console					
				810x550x650					
BEB18/5	1800	1800	170x170x170	1060x550x650	5	6.0	240	1	200
				Control Console					
				810x550x650					

Vacuum (cold/wall) Chamber Furnaces

BVT20/3

BVT 2000° C – The BVT is a cold wall vacuum furnace designed to operate at 1800° C in vacuum and 2000° C in neutral or reducing atmosphere.

Standard Features:

- Choice of high or low vacuum
- Heating by high grade graphite elements
- Fully automatic "fail safe" system is fitted as standard
- The top loading swing door is fully interlocked for safety
- Temperature control is by thermocouple up to 1800°C and by optical pyrometer above 1800° C

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase
BVT20/3	2000	2000	100dia x 150	1400x1150x650	2.4	16.0	400	2
BVT20/5	2000	2000	150dia x 200	1400x1150x650	4.7	24.0	400	2

Custom Designed For all Chamber furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

weights given are indicative only

Light Industrial Chamber Furnaces 1200° C Maximum


BIF12/102

BIF – The BIF 12 furnaces are designed for general purpose industrial heat treatment applications which include stress-relieving normalising and annealing.

Elite Thermal offers a bespoke design service to tailor the BIF design to meet your specific process requirements.

Options:

- Retorts and gas control systems are available for when processes involve inert or reducing atmospheres
- Independent monitoring probes
- Calibration/furnace surveys
- Over temperature protection controller
- Loading/unloading systems
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase
BIF12/72	1200	1150	300x400x600	860x825x945	72	14	400	3
BIF12/102	1200	1150	350x450x650	1800x950x1150	102	20	400	3
BIF12/203	1200	1150	450x600x750	1950x1275x1225	203	35	400	3

Light Industrial Chamber Furnaces 1400° C to 1700° C Maximum


BIF15/102

BIF – The BIF furnaces are designed for high temperature heat treatment applications for high temperature materials such as precious metals & technical ceramics.

The applications include sintering of Engineering Ceramics, Metal Heat Treatments and Glass Melting and Processing.

Elite Thermal offers a bespoke design service to tailor the BIF design to meet your specific process requirements.

Over temperature protection is included in the standard specification.

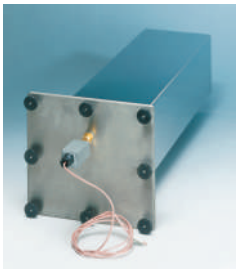
Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Max Chamber Dims (mm) HxWxD	External Case Dims (mm) HxWxD	Chamber Capacity (Litres)	Max Power (Kw)	Volts	Phase
BIF14/102	1400	1400	350x450x650	1800x950x1150	102	30	400	3
BIF14/203	1400	1400	450x600x750	1950x1275x1225	203	45	400	3
BIF15/102	1500	1500	350x450x650	1800x950x1150	102	30	400	3
BIF15/203	1500	1500	450x600x750	1950x1275x1225	203	45	400	3
BIF17/82	1700	1700	450x300x610	1830x1010x1000	82	24	400	3
BIF17/91	1700	1700	450x450x450	1960x1510x1125	91	24	400	3
BIF17/227	1700	1700	610x610x610	2150x1610x1200	227	36	400	3

Product Quality All Elite Thermal Chamber Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

weights given are indicative only

Metal Atmosphere Retorts



- For use up to 1150^{0} C when controlled atmosphere conditions are required and to protect the furnace insulation & heating elements from chemical attack (it may be necessary to update the furnace power when this option is selected)

Hearth Tiles

- Hearth tiles provide protection for the furnace from spillage. Removable hearth tiles are offered at extra cost.
- They are available in variety of materials such as Silicon Carbide, Cordierite, Fibre Board, Alumina and Zirconia

Ceramic Liners

- For general use to protect against chemical attack, to provide a “dust free” environment and a “non gas tight” environment for inert gases

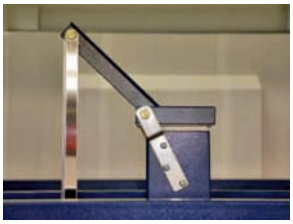
Solenoid valves

- An electric valve can be fitted to either start or stop a gas flow
- This can be activated manually by a panel mounted switch, but more typically it is controlled automatically through a program controller

Flammable Gas control/Safety system

- A full safety system for use with Hydrogen
- Two system types are available providing timed purging and gas monitoring

Powered Exhaust/chimney



- A “Venturi – action” chimney system to improve the rate of fume/binder removal

Temperature Indicator

- An independent digital temperature indicator is built into the furnace control panel and wired to a panel mounted thermocouple socket. (for use with an independent monitor thermocouple)

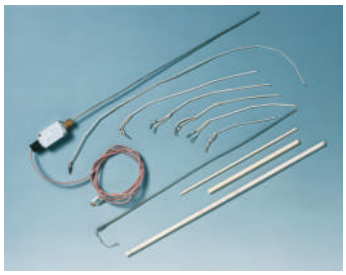
Process Timer

- For use when a basic controller is fitted for automatic shutdown of the furnace/oven after pre-set time

Time Switch

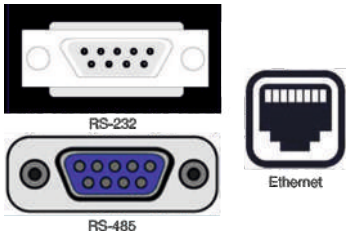
- A digital 7day / 24 hour time switch for programmed switch on / off when using basic temperature controllers. A time switch may not be necessary if more sophisticated controllers are fitted

Monitor thermocouple



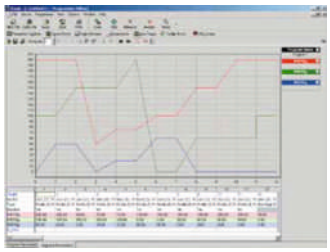
- An independent thermocouple for use in conjunction with a digital temperature indicator

Digital communications



- Digital Communications ports can be fitted to furnaces for external programming or data logging from the temperature controller / programmer(s)
- Connections provided for single instrument RS232 or RS485 standards
- Multi instrument RS485 standard
- Ethernet connections available on certain temperature controllers

Digital communications Software

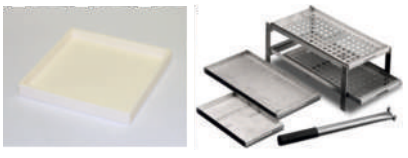


- We offer the i-Tools software package for communication between a computer and control instruments
- This software allows setting of instrument control parameters and time/temperature programs from a computer plus starting & stopping of programs and data logging from one or more controllers

Chart recorders

- Various chart recorders can be supplied ranging from simple single pen with 100mm wide chart paper or multipoint paperless models

Tiles and trays



- A broad range of shapes and sizes are available in various grades of ceramics and metals

Crucibles, Boats, Ignition Dishes & Plates

- A wide variety of shapes and sizes are available in various grades of ceramics and metals

Retort Chamber Furnace

- Temperature-1100°C
- Capacity- 32 litres
- Application: For treatments of magnetic steels

Multi Chamber Gradient Furnace

- Temperature-1200°C
- Application: For Production of YBCO super conducting magnets

Double Furnaces Rig

- Temperature-1200°C
- Application: For optoelectronics material research

2 Zone Precision Controlled Furnace

- Temperature-1700°C
- Capacity- 122 litres
- Application: For R&D in precision ceramics

Precision in ceramics

- Temperature-1800°C
- Capacity- 11 litres
- Application: For precision in ceramics

Precious Metals Treatment

- Temperature-1400°C
- Capacity- 350 litres
- Application: For heat treatment of Precious metals in protective atmosphere

3 Zone Temperature Control Furnace

- Temperature-1700°C
- Capacity- 72 litres
- Application: For processing ceramic fuel cell parts

Sintering Furnace

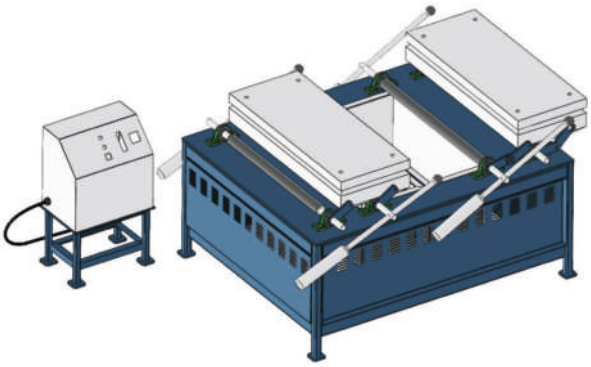
- Temperature-1500°C
- Capacity- 91 litres
- Application: For sintering of technical ceramics

Ceramic Medical Implants Processing

- Temperature-1700°C
- Capacity- 50 litres
- Application: For processing of ceramic medical implants

Top Loading Single Crucible Furnaces

- Temperature-1200°C
- Capacity- 27 litres
- Application: For Glass & Non-Ferrous Metal processing



Top Loading Double Chamber Furnace

- Temperature- 1200°C
- Capacity- 144 litres
- Application: For Fusion applications

Miniature Furnace

- Temperature-1800°C
- Application: For rapid sintering of tungsten electrodes

Special Elevator Retort Sintering Furnace

- Application: Sintering of specially lined “Heat Pipe” devices

General R & D Furnace

- Temperature-1800°C
- Capacity- 27 litres
- Application: For general R&D work on ceramics & cements

Ceramic Electronic Components Processing

- Temperature-1600°C
- Capacity- 122 litres
- Application: For processing ceramic electronic components

Retort Furnaces

- Temperature-1000°C
- Capacity- 340 litres
- Application: For debinding of metals and ceramics injection moulded parts prior to sintering

Rapid Loading / Unloading Furnaces

- Temperature-1200°C
- Capacity- 45 litres
- Application: With powered doors for batch heat treatment of springs

High Temperature Mechanical Testing Furnaces

- Temperature-1200°C
- Capacity- 250 litres
- Application: For heating large concrete beams under high temperature mechanical testing

Elevator Hearth Furnaces

- Temperature-1800°C
- Capacity- 5 litres
- Application: For laboratory processing of special glasses

Trolley Loading Elevator Hearth Furnaces

- Temperature-1700°C
- Capacity- 270 litres
- Application: For sintering high precision technical ceramics

Split Chamber Furnace

- Temperature-1200°C
- Application: For heating racing car parts under fatigue test conditions

General Purpose Incubators (GPI) / Hot Air Steriliser (GPIS) / Wax Incubator (GPIW)

	GPIW-100° C	Options	GPI-100° C	Options	GPIS-250° C	Options
Heating	Convection	Fan	Convection	Fan	Convection	Fan
Temperature Range	Amb + 5° C to 100° C	-	Amb + 10° C to 100° C	-	30° C - 250° C	n/a
Chamber Interior	Alu-clad	ST/ST	Alu-clad	ST/ST	ST/ST	-
Controls	Hydraulic Thermostat	Digital	Hydraulic Thermostat	Digital	Hydraulic Thermostat	Digital
Over temp. Protection	Thermostat with indicator	Digital	Thermostat with indicator	Digital	Thermostat with indicator	Digital
Electrical Supply	220/230V-1ph	n/a	220/230V-1ph	n/a	220/230V-1ph	n/a

General Purpose Ovens (GPO) / Moisture Extraction Ovens (MEO)

	GPO-250° C	Options	GPO-300° C	Options	MEO-250° C	Options
Heating	Convection	Fan	Fan	n/a	Fan	n/a
Temperature Range	40° C - 250° C	20-355 L	40° C - 300° C	n/a	40° C - 250° C	n/a
Chamber Interior	Alu-clad	ST/ST	Alu-clad	ST/ST	ST/ST	n/a
Controls	Hydraulic Thermostat	Digital	Hydraulic Thermostat	Digital	Hydraulic Thermostat	Digital
Over temp. Protection	Thermostat with indicator	Digital	Thermostat with indicator	Digital	Thermostat with indicator	Digital
Electrical Supply	220/230V-1ph	n/a	220/230V-1ph	n/a	220/230V-1ph	n/a
Forced Extraction	n/a	n/a	n/a	n/a	Standard	n/a

High Temperature Ovens (BAF)

	BAF-400° C	BAF-500° C	BAF-600° C
Heating	Fan	Fan	Fan
Temperature Range	40° C 400° C	40° C 500° C	40° C 600° C
Chamber Interior	ST/ST	ST/ST	ST/ST
Controls	Digital	Digital	Digital
Over temp. Protection	Digital	Digital	Digital
Electrical Supply	220/230V-1ph	220/230V-1ph	220/230V-1ph

Litres	10	20	30	40	50	60	75	100	120	150	180	210	240	280	350	355
GPO-250	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GPO-300	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
GPI-100	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GPIS-250	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
GPIW-100	-	-	✓	-	✓	✓	✓	-	✓	-	-	-	-	-	-	-
BAF-400	-	-	✓	-	-	✓	-	-	✓	-	-	-	-	-	-	-
BAF-500	-	-	✓	-	-	✓	-	-	✓	-	-	-	-	-	-	-
BAF-600	-	-	✓	-	-	✓	-	-	✓	-	-	-	-	-	-	-
MEO-250	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-

Heavy Duty Ovens (200 to 600° C)

A comprehensive range of robust ovens is available in varying sizes up to 1000 litres capacity.
Sizes above this can be designed to specific customer process requirements.

We also offer a Custom Design & Build Service for Specific Applications

Ovens

Custom Designed Ovens

400°C- Capacity 730 litres

- Designed for treating high power resistors.

400°C- Capacity 27 litres per compartment

- Designed for curing of powder coated parts

400°C

- Oven with jigs for flow soldering of heat sink assemblies

600°C- Capacity 250 litres

- Designed for annealing thermionic valve glass envelopes

500°C- Capacity 610 litres

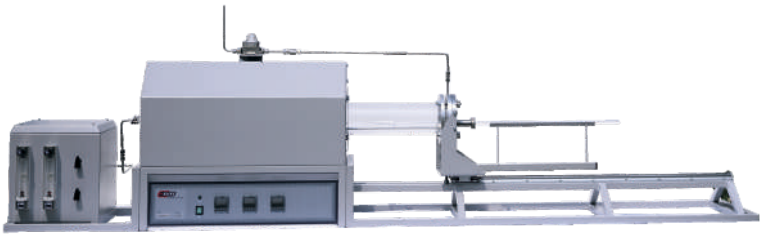
- Designed for treating thermionic valves glass envelopes.

300°C & 600°C

- Dual oven rig-Designed for thermal performance testing on insulation materials - Sample size 300mm x 300mm

300°C

- Oven with variable speed rotating jig having capacity for 8 acid digestion vessels



450°C - Capacity 75mm diameter x 500mm heated length

- 3 Zone tube oven with loading system for treatment of indium wafers

Horizontal & Vertical Tube Furnaces up to 1800 °C

Standard and Customized Tube Furnaces for Research & Industrial Applications

Tube Furnaces up to 1800° C

Single Zone, Multi Zone
Horizontal, Vertical, Split
Rotating, Vacuum & Custom Designed

Elite Thermal offers a wide range of standard and custom designed tube furnaces which are widely used in Educational, Research and Industrial organisations throughout the world.

This design and engineering capability enables Elite Thermal, and its representatives, to service contracts ranging from laboratory scale to full scale batch and continuous production of equipment.

The tube furnaces from Elite Thermal are intended for use at up to 1800°C. They come in a variety of tube diameters / lengths single and multi-heated zones, split (horizontal or vertical), rotating, vacuum options and many other configurations.

Tube Furnaces Single Zone — 1200° C to 1800° C Maximum

Single zone Tube furnaces for temperatures 1200° C, 1400° C, 1500° C, 1600° C, 1700° C, 1750° C & 1800° C

TSH – This comprehensive range of furnaces offers 43 standard models with an operating temperature range 1200° C to 1800° C.

1200° C, 1400° C, 1500° C & 1600° C models are all bench mounted and have protective outer mesh covers for improved operator safety with all other models being floor standing. 1700° C, 1750° C & 1800° C models are all floor mounted high temperature single zone tube furnaces.

Horizontal Tube Furnaces — TSH12 — 1200° C Maximum

The TSH12 furnace is a bench mounted tube furnace ideal for most general laboratory thermal processing applications.

Standard Features:

- The furnace design incorporates an integral elemental tube
- Protective outer mesh covers for improved operator safety
- Low thermal mass insulation is used throughout for rapid response rates and maximum efficiency and stability
- For aggressive processes, a separate work tube is recommended to minimise the risk of contaminating the elemental work tube
- A rugged metal sheathed control thermocouple is protected from accidental damage and allows full use of work tube bore
- Controls are located at the base of the furnace
- 'N' Type thermocouple is used in these furnaces
- High end Microprocessor PID controller

TSH12/38/500

TSH12/50/610

Options:

- Work tubes of various materials, lengths and diameters for use in the furnace
- The work tubes are available for containment of atmosphere or protection against process contaminants
- A variety of end seals for work tubes to allow processing under vacuum or gas atmospheres
- Multi segment, multi program storage controller
- Over temperature protection controller

Heating elements: Special arrangement via resistance wire wound onto a ceramic worktube which is an integral part of the furnace gives optimum temperature uniformity throughout the furnace.

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Worktubes (ID x Length) nom Short	Long
TSH12/25/250	1200	1150	25	250	0.8	230	1	560x335x315	11	16x350	16x500
TSH12/25/500	1200	1150	25	500	1.2	230	1	560x585x315	16	16x600	16x750
TSH12/38/250	1200	1150	38	250	1.0	230	1	560x335x315	12	25x350	25x500
TSH12/38/500	1200	1150	38	500	1.7	230	1	560x585x315	16	25x600	25x750
TSH12/50/300	1200	1150	50	300	1.7	230	1	560x385x315	14	38x400	38x600
TSH12/50/610	1200	1150	50	610	2.0	230	1	620x700x330	21	38x700	38x900
TSH12/75/610	1200	1150	75	610	2.8	230	1	620x700x330	26	60x900	60x1050
TSH12/75/750	1200	1150	75	750	3.0	230	1	620x840x330	30	60x900	60x1050
TSH12/100/940	1200	1150	100	940	4.3	230	1	650x1025x370	45	75x1050	75x1500

Custom Designed For all Tube furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

Vertical Tube Furnaces | TSV12 | 1200° C Maximum

The TSV12 furnace comes as a bench mounted tube furnace as well as a floor mounted tube furnace ideal for most general laboratory thermal processing applications.

Standard Features:

- The standard features of TSV12 are same as that of TSH12
- This Vertical furnace comes with a separate control console

Options:

- Optional accessories for TSV12 are same as that for TSH12

Heating elements: The heating elements are same as that for TSH12

TSV12

TSV12

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase
TSV12/25/250	1200	1150	25	250	0.8	230	1
TSV12/25/500	1200	1150	25	500	1.2	230	1
TSV12/38/250	1200	1150	38	250	1.0	230	1
TSV12/38/500	1200	1150	38	500	1.7	230	1
TSV12/50/300	1200	1150	50	300	1.7	230	1
TSV12/50/610	1200	1150	50	610	2.0	230	1
TSV12/75/610	1200	1150	75	610	2.8	230	1
TSV12/75/750	1200	1150	75	750	3.0	230	1
TSV12/100/940	1200	1150	100	940	4.3	230	1

Product Quality All Elite Thermal Tube Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

Horizontal Tube Furnaces | TSH14, 15 & 16 | 1400° C, 1500° C & 1600° C Maximum

Standard Features:

- These models are heated by axially mounted silicon carbide elements around the worktube. These ensure fast heat up and excellent temperature uniformity
- Controls are located at the base of the furnace
- This furnace design requires the use of a separate work tube of a grade suitable for the maximum temperature rating of the respective furnace model
- This family of furnaces is ideal for most laboratory high temperature processing applications

TSH14/50/450

Options:

- Radiation screens
- Multi segment, multi program storage controllers
- Over temperature protection controller
- Various style end seals to allow processing under vacuum or gas atmospheres
- A wide range of work tubes is available for containment of atmosphere or protection against process contaminants

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Worktubes (ID x Length) nom Short	Long
TSH14/25/180	1400	1400	25	180	1.5 (3.6)*	230	1	610x585x415	22	25x600	25x750
TSH14/50/180	1400	1400	50	180	1.5 (3.6)*	230	1	610x585x415	22	50x600	50x800
TSH14/25/450	1400	1400	25	450	4.5 (5.8)*	230	1	715x1000x460	70	25x1050	25x1200
TSH14/50/450	1400	1400	50	450	4.5 (5.8)*	230	1	715x1000x460	70	50x1050	50x1200
TSH14/75/450	1400	1400	75	450	4.5 (5.8)*	230	1	715x1000x460	70	75x1050	75x1200
TSH14/25/610	1400	1400	25	610	6.0 (10.1)*	230	1	715x1150x460	75	25x1200	25x1350
TSH14/50/610	1400	1400	50	610	6.0 (10.1)*	230	1	715x1150x460	75	50x1200	50x1350
TSH14/75/610	1400	1400	75	610	7.0 (10.1)*	230	1	715x1150x460	75	75x1200	75x1350
TSH15/25/180	1500	1500	25	180	1.5 (3.6)*	230	1	610x585x415	22	25x600	25x750
TSH15/50/180	1500	1500	50	180	1.5 (3.6)*	230	1	610x585x415	22	50x600	50x800
TSH15/25/450	1500	1500	25	450	4.5 (5.8)*	230	1	715x1000x460	70	25x1050	25x1200
TSH15/50/450	1500	1500	50	450	4.5 (5.8)*	230	1	715x1000x460	70	50x1050	50x1200
TSH15/75/450	1500	1500	75	450	4.5 (5.8)*	230	1	715x1000x460	70	75x1050	75x1200
TSH15/25/610	1500	1500	25	610	6.0 (10.1)*	230	1	715x1150x460	75	25x1200	25x1350
TSH15/50/610	1500	1500	50	610	6.0 (10.1)*	230	1	715x1150x460	75	50x1200	50x1350
TSH15/75/610	1500	1500	75	610	7.0 (10.1)*	230	1	715x1150x460	75	75x1200	75x1350
TSH16/25/180	1600	1600	25	180	1.5 (7.7)*	230	1	610x585x415	22	25x600	25x750
TSH16/50/180	1600	1600	50	180	1.5 (7.7)*	230	1	610x585x415	22	48x600	48x900
TSH16/25/450	1600	1600	25	450	5.0 (33.0)*	400	3	715x1000x460	70	25x1050	25x1200
TSH16/50/450	1600	1600	50	450	5.0 (33.0)*	400	3	715x1000x460	70	48x1050	48x1350
TSH16/75/450	1600	1600	75	450	5.0 (33.0)*	400	3	715x1000x460	70	75x1050	75x1350
TSH16/25/610	1600	1600	25	610	7.0 (29.0)*	400	3	825x1150x562	75	25x1200	25x1350
TSH16/50/610	1600	1600	50	610	7.0 (29.0)*	400	3	825x1150x562	75	48x1200	48x1500
TSH16/75/610	1600	1600	75	610	8.0 (29.0)*	400	3	825x1150x562	75	75x1200	75x1500

** denotes supply peak power requirement.*

Custom Designed For all Tube furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

Vertical Tube Furnaces TSV14, 15 & 16 1400° C, 1500° C & 1600° C Maximum

Standard Features:

- The standard features of TSV14, 15 & 16 are same as that of TSH14, 15 & 16 respectively
- The controls for these vertical furnaces come as a separate console

Options:

- Optional accessories for TSV14, 15 & 16 are the same as that of TSH14, 15 & 16 respectively

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase
TSV14/25/180	1400	1400	25	180	1.5 (3.6)*	230	1
TSV14/50/180	1400	1400	50	180	1.5 (3.6)*	230	1
TSV14/25/450	1400	1400	25	450	4.5 (5.8)*	230	1
TSV14/50/450	1400	1400	50	450	4.5 (5.8)*	230	1
TSV14/75/450	1400	1400	75	450	4.5 (5.8)*	230	1
TSV14/25/610	1400	1400	25	610	6.0 (10.1)*	230	1
TSV14/50/610	1400	1400	50	610	6.0 (10.1)*	230	1
TSV14/75/610	1400	1400	75	610	7.0 (10.1)*	230	1
TSV15/25/180	1500	1500	25	180	1.5 (3.6)*	230	1
TSV15/50/180	1500	1500	50	180	1.5 (3.6)*	230	1
TSV15/25/450	1500	1500	25	450	4.5 (5.8)*	230	1
TSV15/50/450	1500	1500	50	450	4.5 (5.8)*	230	1
TSV15/75/450	1500	1500	75	450	4.5 (5.8)*	230	1
TSV15/25/610	1500	1500	25	610	6.0 (10.1)*	230	1
TSV15/50/610	1500	1500	50	610	6.0 (10.1)*	230	1
TSV15/75/610	1500	1500	75	610	7.0 (10.1)*	230	1
TSV16/25/180	1600	1600	25	180	1.5 (7.7)*	230	1
TSV16/50/180	1600	1600	50	180	1.5 (7.7)*	230	1
TSV16/25/450	1600	1600	25	450	5.0 (33.0)*	400	3
TSV16/50/450	1600	1600	50	450	5.0 (33.0)*	400	3
TSV16/75/450	1600	1600	75	450	5.0 (33.0)*	400	3
TSV16/25/610	1600	1600	25	610	7.0 (29.0)*	400	3
TSV16/50/610	1600	1600	50	610	7.0 (29.0)*	400	3
TSV16/75/610	1600	1600	75	610	8.0 (29.0)*	400	3

** denotes supply peak power requirement.*

Product Quality All Elite Thermal Tube Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

Horizontal Tube Furnaces TSH17 & 18 1700° C and 1800° C Maximum


TSH17/75/450

Standard Features:

- These models are heated on both front and rare sides of the chamber by Molybdenum Disillicide elements or Molybedunum Tungsten Disilicide elements
- These furnaces are constructed using high grade insulation materials throughout for rapid response rates and maximum thermal efficiency and stability
- Over temperature protection is fitted as a standard

Options:

- A wide range of furnace worktubes is available
- Various style end seals to allow processing under vacuum (up to 1500° C maximum) or gas atmospheres
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Worktubes (ID x Length) nom Short	Long
TSH17/75/300	1700	1700	75	300	6.0	230	1	1500x625x650	220	75x700	75x1000
TSH17/75/450	1700	1700	75	450	9.0	230	1	1500x775x650	265	75x900	75x1200
TSH17/75/600	1700	1700	75	600	Details upon request						
TSH18/40/300	1800	1800	40	300	8.1	230	1	1600x600x575	226	38x650	38x900
TSH18/60/200	1800	1800	60	200	Details upon request						
TSH18/75/300	1800	1800	75	300	6.0	230	1	1550x675x650	220	75x700	75x1000
TSH18/75/450	1800	1800	75	450	9.0	230	1	1550x825x650	265	75x900	75x1200
TSH18/75/600	1800	1800	75	600	Details upon request						
TSH18/80/350	1800	1800	80	350	Details upon request						
TSH18/130/350	1800	1800	130	350	Details upon request						

Vertical Tube Furnaces TSV17, 175 & 18 1700° C, 1750° C and 1800° C Maximum


TSV18/75/600

Standard Features:

- The standard features of TSV17 & 18 are the same as that of TSH17 & 18 respectively
- These vertical furnaces come with a separate control console
- TSV175 models are heated by lanthanum chromite elements suspended parallel to the work tube

Options:

- Optional accessories for TSV17 & 18 are the same as that of TSH17 & 18 respectively

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)
TSV17/75/300	1700	1700	75	300
TSV17/75/450	1700	1700	75	450
TSV17/75/600	1700	1700	75	600
TSV175/50/200	1750	1750	50	200
TSV175/60/200	1750	1750	60	200
TSV175/75/350	1750	1750	75	350

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)
TSV175/80/350	1750	1750	80	350
TSV175/110/350	1750	1750	110	350
TSV175/130/350	1750	1750	130	350
TSV18/75/300	1800	1800	75	300
TSV18/75/450	1800	1800	75	450
TSV18/75/600	1800	1800	75	600

Custom Designed For all Tube furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

Multi Zone Horizontal - 3 Zone — 1200° C, 1500° C, 1600° C, 1700° C and 1800° C Maximum

Standard Features:

- TMH – The TMH furnaces are designed to give a longer uniform centre zone temperature than that of the single zone tube furnace models. All TMH models are controlled by retransmission of set point from the centre zone controller to the end zone controllers
- This system provides a longer uniform zone temperature than that achieved by the use of single zone furnace of the same length
- Independent control of each zone is also available
- Controls are located at the base of the furnace

TMH14-15-16 Style-3 Zone

TMH18

Note:

- 1700°C & 1800°C models are usually floor standing models
- Over temperature protection is included in the standard specification for 1700°C & 1800°C models

Options:

- Over temperature protection controller
- A wide range of furnace worktubes are available
- Various style end seals to allow processing under vacuum (up to 1500°C maximum) or gas atmospheres
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Worktubes (ID x Length) nom Short	Long
TMH12/38/500	1200	1150	38	500	1.8	230	1	560x605x315	16	25x600	25x750
TMH12/50/610	1200	1150	50	610	2.0	230	1	620x720x330	21	38x700	38x1050
TMH12/75/750	1200	1150	75	750	2.7	230	1	620x860x330	30	57x900	57x1050
TMH12/100/940	1200	1150	100	940	5.2	230	1	650x1045x370	45	75x1050	75x1500
TMH15/50/450	1500	1500	50	450	4.5 (22.0)*	400	3	715x1000x460	55	50x1050	50x1200
TMH15/75/450	1500	1500	75	450	5.0 (22.0)*	400	3	715x1000x460	55	75x1050	75x1200
TMH15/50/610	1500	1500	50	610	5.0 (23.0)*	400	3	715x1000x460	65	50x1200	50x1350
TMH15/75/610	1500	1500	75	610	6.0 (23.0)*	400	3	715x1150x460	65	75x1200	75x1350
TMH15/90/610	1500	1500	90	610	7.5 (23.0)*	400	3	715x1150x460	68	90x1200	90x1450
TMH16/50/450	1600	1600	50	450	4.0 (9.3)*	400	3	715x1000x460	60	50x1050	50x1200
TMH16/75/450	1600	1600	75	450	6.0 (9.9)*	400	3	715x1000x460	60	75x1050	75x1350
TMH16/50/610	1600	1600	50	610	6.0 (9.3)*	400	3	825x1150x562	70	50x1200	75x1500
TMH16/75/610	1600	1600	75	610	6.0 (9.4)*	400	3	825x1150x562	70	75x1200	75x1500
TMH16/90/610	1600	1600	90	610	9.0 (11.3)*	400	3	825x1150x562	70	90x1200	75x1500
TMH17/50/450	1700	1700	50	450	9.0	230	1	1550x835x650	280	50x900	50x1200
TMH17/75/450	1700	1700	75	450	9.0	230	1	1550x835x650	280	75x900	75x1200
TMH17/50/610	1700	1700	50	610	10.0	230	1	1550x995x650	310	50x1200	50x1500
TMH17/75/610	1700	1700	75	610	10.0	230	1	1550x995x650	310	75x1200	75x1500
TMH18/50/450	1800	1800	50	450	9.0	230	1	1550x835x650	280	50x900	50x1200
TMH18/75/450	1800	1800	75	450	9.0	230	1	1550x835x650	280	75x900	75x1200
TMH18/50/610	1800	1800	50	610	10.0	230	1	1550x995x650	310	50x1200	50x1500
TMH18/75/610	1800	1800	75	610	10.0	230	1	1550x995x650	310	75x1200	75x1500

** denotes supply peak power requirement.*

Product Quality All Elite Thermal Tube Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

For Multi-zone Tube furnaces, we can supply:
1.Two or more zones
2.Other temperatures that are not specified
3.Other Tube diameters and lengths that are not specified.

Multi Zone Vertical - 3 Zone — 1200° C, 1500° C, 1600° C, 1700° C and 1800° C Maximum

Standard Features:

- The standard features of TMV12, 15, 16, 17 & 18 are the same as that of TMH12, 15, 16, 17 & 18 respectively
- These vertical furnaces come with a separate control console

Options:

- Optional accessories for TMV12, 15, 16, 17 & 18 are the same as that of TMH12, 15, 16, 17 & 18 respectively

TMV15

TMV16/75/610

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase
TMV12/38/500	1200	1150	38	500	1.8	230	1
TMV12/50/610	1200	1150	50	610	2.0	230	1
TMV12/75/750	1200	1150	75	750	2.7	230	1
TMV12/100/940	1200	1150	100	940	5.2	230	1
TMV15/50/450	1500	1500	50	450	4.5 (22.0)*	400	3
TMV15/75/450	1500	1500	75	450	5.0 (22.0)*	400	3
TMV15/50/610	1500	1500	50	610	5.0 (23.0)*	400	3
TMV15/75/610	1500	1500	75	610	6.0 (23.0)*	400	3
TMV15/90/610	1500	1500	90	610	7.5 (23.0)*	400	3
TMV16/50/450	1600	1600	50	450	4.0 (9.3)*	400	3
TMV16/75/450	1600	1600	75	450	6.0 (9.9)*	400	3
TMV16/50/610	1600	1600	50	610	6.0 (9.3)*	400	3
TMV16/75/610	1600	1600	75	610	6.0 (9.4)*	400	3
TMV16/90/610	1600	1600	90	610	9.0	400	3
TMV17/50/610	1700	1700	50	610	10.0	230	1
TMV17/75/610	1700	1700	75	610	10.0	230	1
TMV18/50/610	1800	1800	50	610	10.0	230	1
TMV18/75/610	1800	1800	75	610	10.0	230	1

** denotes supply peak power requirement.*

Custom Designed For all Tube furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

For Multi-zone Tube furnaces, we can supply:
1.Two or more zones
2.Other temperatures that are not specified
3.Other Tube diameters and lengths that are not specified.

Split Horizontal Tube Furnaces – Single Zone — 1100° C & 1200° C maximum

The TSHH split tube furnace is designed to meet the needs of 'in-line' thermal processes, and for when rapid cooling is required.

TSHH12/90/305

Standard Features:

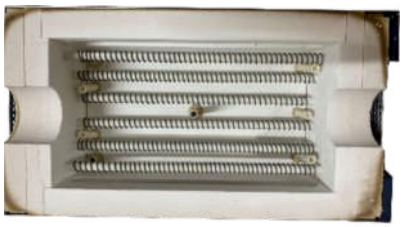
- This furnace range is bench mounted and can be supplied with controls mounted as an integral part of the furnace body or in a remote console on two meters of interconnecting cables
- This Horizontal furnace body is split into two halves and hinged at the rear.
- The ability to open the furnace makes it easier for operators to exchange the work tube or insert vessels
- Energy efficient, high quality, low thermal mass insulation provides fast heating and cooling
- A work tube is not supplied as an integral part of the furnace and therefore needs to be ordered with the furnace as it is an essential accessory
- The furnace accepts a range of work tubes up to 90mm outside diameter when used with tube reducer inserts
- 'N' type thermocouple is used in these furnaces
- High end Microprocessor PID controller

Options:

- Work tubes of various materials, lengths and diameters for use in the furnace
- The work tubes are available for containment of atmosphere or protection against process contaminants.
- A variety of end seals for work tubes to allow processing under vacuum or gas atmospheres.
- Multi segment, multi program storage controller
- Over temperature controller

Heating elements:

Free radiating high grade resistance wire elements supported on ceramic tubes



Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Worktubes (ID x Length) nom Short	Long
TSHH11/90/305	1100	1050	90	305	2.1	230	1	538x405x660	37	75x450	75x700
TSHH11/90/457	1100	1050	90	457	2.8	230	1	538x557x660	46	75x600	75x900
TSHH11/90/610	1100	1050	90	610	4.2	230	1	538x710x660	72	75x750	75x1050
TSHH12/90/305	1200	1150	90	305	2.1	230	1	538x405x660	37	75x450	75x700
TSHH12/90/457	1200	1150	90	457	3.0	230	1	538x557x660	46	75x600	75x900
TSHH12/90/610	1200	1150	90	610	5.0	230	1	538x710x660	72	75x750	75x1050
TSHH12/90/940	1200	1150	90	940	6.0	230	1	538x1040x660	90	75x1050	75x1500

Product Quality All Elite Thermal Tube Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

Vertical Split Tube Furnaces TSVH11 & 12 1100° C & 1200° C Maximum


TSVH11

The TSVH11 & 12 furnaces come as a bench mounted tube furnace as well as a floor mounted tube furnace ideal for most general laboratory thermal processing applications.

Standard Features:

- The standard features of TSVH11 & 12 are the same as that of TSHH11 & 12
- These Vertical furnaces come with a separate control console

Options:

- Optional accessories for TSVH11 & 12 are the same as that for TSHH11 & 12

Heating elements: The heating elements are the same as that for TSHH11 and TSHH12

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Worktubes (ID x Length) nom Short	Long
TSVH11/90/305	1100	1050	90	305	2.1	230	1	538x405x660	37	75x450	75x700
TSVH11/90/457	1100	1050	90	457	2.8	230	1	538x557x660	46	75x600	75x900
TSVH11/90/610	1100	1050	90	610	4.2	230	1	538x710x660	72	75x750	75x1050
TSVH12/90/305	1200	1150	90	305	2.1	230	1	538x405x660	37	75x450	75x700
TSVH12/90/457	1200	1150	90	457	3.0	230	1	538x557x660	46	75x600	75x900
TSVH12/90/610	1200	1150	90	610	5.0	230	1	538x710x660	72	75x750	75x1050
TSVH12/90/940	1200	1150	90	940	6.0	230	1	538x1040x660	90	75x1050	75x1500

Vertical Split Tube Furnaces TSVH17 1700° C Maximum


TSVH17/90/250

The TSVH model is available in only one standard format as set out in the table below. Alternative heated lengths and/or tube diameters can be manufactured to meet specific customer requirements.

Standard Features:

- This model is heated by molybdenum disilicide elements
- Work tube is not a standard supply and need to be ordered along with furnace
- Over temperature protection is included in the standard specification

Optional:

- Separate worktubes with end seals allow processing under vacuum or gas atmospheres
- Multi segment, multi program storage controllers

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Worktubes (ID x Length) nom Short	Long
TSVH17/90/250	1700	1650	90	250	4.5	230	1	570x650x650	70	75x600	75x900

Custom Designed For all Tube furnaces, Elite Thermal manufactures custom-built furnaces. Please write to us with your requirement

Vacuum Tube Furnaces – Single Zone — 1200° C and 1500° C Maximum

Elite Thermal's laboratory scale vacuum furnaces provide high specification systems at very competitive prices. The specifications can be tailored for high vacuum or low vacuum processing specifications with an ultimate vacuum 10^{-5} mbar (with clean empty tube).

The standard systems are only supplied in horizontal format.

Standard Features:

- Vacuum vessel – ceramic tube with SS end seals
- Rotary pump – 2 stage rotary vane pump
- Water cooled oil diffusion pump or turbo molecular pump
- Backing/roughing & baffle valve (manual)
- Pirani gauge – Low vacuum monitoring
- Penning gauge – high vacuum monitoring

TSHVC12/75/600

Technical Data:

Model	Max Temp (°C)	Max Cont (°C)	Tube Diameter (ID) (mm)	Heated Length (mm)	Max Power (Kw)	Volts	Phase	Ext Dimensions (mm) H x W x D	Net Wt. (kg)	Radiation Screens Ceramic	Radiation Screens Metalic
TSHVC12/50/600	1200	1150	50	600	2.0	230	1	1450x1700x600	195	○	○
TSHVC12/75/600	1200	1150	75	600	2.8	230	1	1450x1700x600	195	○	○
TSHVC15/50/450	1500	1500	50	450	5.8	230	1	1500x1700x600	195	○	○
TSHVC15/75/450	1500	1500	75	450	5.8	230	1	1500x1700x600	195	○	○

Optional:

- 3 zone control
- Semi/fully automatic vacuum and Heating cycles
- Low vacuum systems
- Gas control/safety systems
- Gas inlets

TSHVC15/75/450

Product Quality All Elite Thermal Tube Furnaces are designed and manufactured to meet the highest standards of Quality, Reliability and Operator Safety.

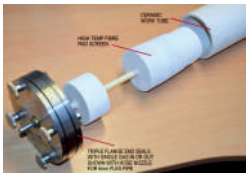
Ceramic worktubes

- Work tubes of various materials, lengths and diameters for use in the furnace

Crucible boats Ignition dishes tiles

- A wide variety of shapes and sizes is available are metal and various grades of ceramics and metals

Gas Tight End Seals

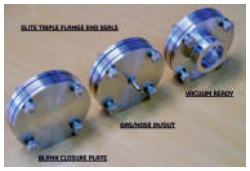


- Types “UNIVERSAL” and “TRIPLE FLANGE” are available for use with gas atmosphere and vacuum applications. (water cooling options are available)

Gas Inlet / Outlet

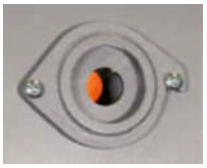
- For use in conjunction with gas tight end seals for applications using inert gases

Vacuum Flanges



- For use in conjunction with gas tight end seals for vacuum applications

Access/Viewing Ports



- Various designs can be tailored to suit specific applications
- Used in conjunction with gas tight end seals

Flow meter

- With control valve for air or inert gases. For use with gas inlets and work tubes with gas tight end seals

Tube supports

Tube supports have two functions:

- To support extended work tubes
- To support extended work tubes with the additional weight of end seals

Flammable Gas control/Safety system

- A full safety system for use with Hydrogen
- Two system types are available providing timed purging and gas monitoring

Temperature Indicator

- An independent digital temperature indicator is built into the furnace control panel and wired to a panel mounted thermocouple socket. (for use with an independent monitor thermocouple)

Monitor thermocouple

- An independent thermocouple for use in conjunction with a digital temperature indicator

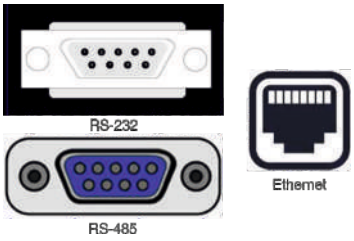
Process Timer

- For use when a basic controller is fitted for automatic shutdown of the furnace/oven after pre-set time

Time Switch

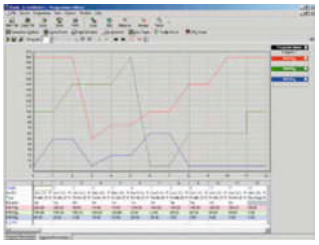
- A digital 7day / 24 hour time switch for programmed switch on / off when using basic temperature controllers. A time switch may not be necessary if more sophisticated controllers are fitted

Digital communications



- Digital Communications ports can be fitted to furnaces for external programming or data logging from the temperature controller / programmer(s)
- Connections provided for single instrument RS232 or RS485 standards
- Multi instrument RS485 standard
- Ethernet connections available on certain temperature controllers

Digital communications Software



- We offer the i-Tools software package for communication between a computer and control instruments
- This software allows setting of instrument control parameters and time/temperature programs from a computer plus starting & stopping of programs and data logging from one or more controllers

Chart recorders

- Various chart recorders can be supplied rainging from simple single pen with 100mm wide chart paper or multipoint paperless models

Furnace stands

- A range of horizontal, vertical and universal stand options are available for bench and floor standing furnaces

Ceramic Insulation Plugs

- These are designed to reduce the heat loss from the tube ends and to improve the temperature uniformity
- They are helpful for vertical tubes, different insulation plugs are supplied for use with standard length work tubes

Multi-position furnace

- Temperature-1100°C
- Capacity: 50mm diameter x 750mm heated length
- Application: General laboratory use requiring various operating positions

Tube Furnaces with Lift/lower system

- Temperature-1100°C
- Application: For use with proprietary electrical test probe equipment

Tube Furnaces with Lift/lower system with probe

- Temperature-1000°C
- Application: For use with proprietary electrical test probe equipment

3 zone vertical tube furnace

- Temperature-1500°C
- Capacity- 65 mm diameter x 610 mm heated length
- Application: For biomass fuel research

Research Furnace

- Temperature-1500°C
- Capacity- 75 mm diameter x 900 mm heated length
- Application: For research and production of carbon nanotubes

Research Furnace

- Temperature-1700°C
- Capacity- 75 mm diameter x 450 mm heated length
- Application: Horizontal furnace for general high temperature research

3 zone tube furnace

- Temperature-1300°C
- Capacity- 200 mm diameter x 600 mm heated length
- Application: For treatment of semi conductor wafers

Split tube furnace with load device

- Temperature-1050°C
- Capacity- 90 mm diameter retort x 600 heated height
- Application: For testing of thermal insulation materials

Vertically split Furnaces

- Temperature-1200°C
- Capacity- 50 mm diameter retort x 305 heated height
- Application: For use with materials testing probe system

Rotary reactor Furnaces

- Temperature-1000°C
- Capacity- 15 litres
- Application: Refractory metal reaction vessel for research in use of coal & coke by products

Rotary reactor Furnaces

- Temperature-1100°C
- Application: Quartz reactor for R &D in novel powders

Quartz reactor Tube Furnace

- Temperature-1200°C
- Application: Quartz reactor for determination of oxygen content of copper powders

Twin tube furnace

- Temperature-1200°C
- Application: Twin 3 zone vertical furnaces used with a winding RIG for annealing fine precious metal wires

3 zone research Furnace

- Temperature-1700°C
- Capacity- 75 mm diameter x 900 mm heated length
- Application: 3 zone horizontal furnace for general high temperature research

Vertical split tube Furnaces

- Temperature-1100°C
- Capacity : 75mm diameter x 600mm heated length
- Application: For general research work

Horizontal split tube Furnaces

- Temperature-1100°C
- Capacity : 75mm diameter x 600mm heated length
- Application: For general research work

3 zone vertical Split furnace

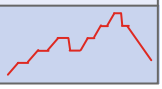
- Temperature-1200°C
- Application: For use in tensile, fatigue and creep testing equipment

Special Furnaces for Electrical cable insulation

- Temperature-1200°C
- Application: For determination of evolved gases from heated electrical cables insulation

Elite Thermal offers a selection of microprocessor based control instruments from the Eurotherm range, the following is a guide to the capabilities of the standard range of controllers offered:-

Controller and Programmer Features Guide

Type	Indicator	PID	Programmer Level 1	Programmer Level 2*	Overtemperature Protection	Advanced Programmer Level 1	Advanced Programmer Level 2
Model	3216i	3216cc	3216cp	3508 p1	3216i	3016cp	3016p1
Controller size (mm) (Height x width)	48 x 48	48 x 48	48 x 48	96 x48	48 x48	48 x 48	48 x 48
Communications	Optional RS232 or Rs485	Optional RS232 or Rs485	Optional RS232 or Rs485	Optional RS232 or Rs485	Optional RS232 or Rs485	Optional RS232 or Rs485	Optional RS232 or Rs485
Display	Dual	Dual	Dual	Dual	Dual	Dual	Dual
Alarm Display	No	Yes	Yes	Yes	Yes	Yes	Yes
Number of Programmes	N/A	None (Ramp to set point)	1	1	N/A	1	1
Number of Segments per Program	N/A	N/A	8 3216-4 fixed format segment pairs	20 (Free Format)	N/A	8 segment	25 segment
Typical Profiles	N/A				N/A		

*10 & 25 program versions of this controller are available.

Note:

1) Other types of instrumentation/controller can be supplied in accordance with your instructions
2) For 3508, 3016cp and 3016P1, ethernet communications is also available

Temperature Controllers, Programmers & Indicators

Over Temperature Protection

Eurotherm 3216i
This controller forms part of an independent overtemperature protection system which operates in conjunction with its own independent thermocouple and contactor to shut the furnace down if the controller setpoint is exceeded

PID Controller

Eurotherm 3216CC
This 3000 series instrument is a dual display PID controller which features a scrolling help screen. A single ramp to setpoint followed by a dwell facility is a standard feature

Programmable Controllers

Eurotherm 3216CP
The features are as the 3216CC but also includes a single program of 4 fixed format segment pairs, in which each segment pair is a ramp followed by a dwell. [Note: the dwell can be of zero time, at the expense of a segment]

Eurotherm 3508 P1
The 3508P1 is a larger format programmer with multi-line display. It has a single program storage of up to 20 free format segments. It can also be supplied as a dual loop instrument for either cascade control or dual zone control

Eurotherm 3016 CP
3016 CP is a PID Controller with programmer. It has a single program storage of 8 free format segments

Eurotherm 3016 P1
3016 P1 is a PID Controller with programmer. It has a single program storage of 25 free format segments. It is also possible for two relay operated options also

Eurotherm 3508 P10 & P25
These versions are like the 3508P1 but have more programming capability. The 3508P10 has 10 programs with a combined total of 500 segments.
The 3508P25 has 25 programs with a combined total of 500 segments

Temperature Indicator

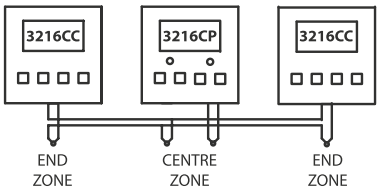
Eurotherm 3216i
An independent digital temperature indicator which is built into the furnace control panel and wired to a panel mounted thermocouple socket. (This is for use with an independent monitor thermocouple)
Note: Indicators can also be supplied in a separate mini-console so that, with the addition of a suitable thermocouple, it can be used as an independent portable temperature checker

1) Three Zone Controls - *Designed to provide a longer uniform hot zone*

Differential (Back to Back)

This is the standard configuration where by the two end zone controller thermocouples are coupled (back to back) with a centre zone thermocouple.

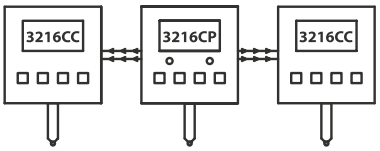
This method is unsuitable for use where controlled cooling is required. Please refer to retransmission of setpoint method.



Retransmission of Setpoint

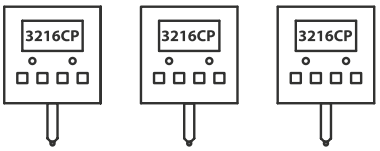
This method has the centre zone programmer digitally sending its setpoint to the other zone controllers so ensuring that all instruments follow the same profile.

This method is recommended where controlled cooling is required.



Independent

This method provides three independent controllers each with their own thermocouple. If programming features are required for the application then all zones must be fitted with a programmable controller.



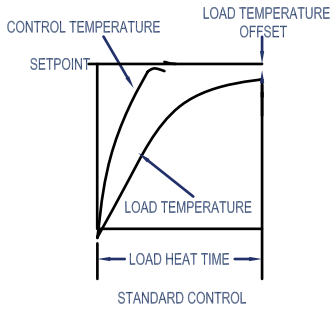
2) Cascade Control - *Designed to allow furnace loads to be heated at a faster rate, with more precise control than the standard control system*

This control system adds another thermocouple and controller to the basic furnace control system.

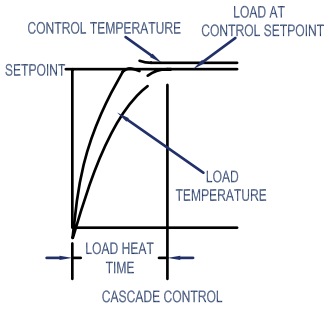
The additional thermocouple is placed close to, or in, the load and connected to the main controller (load control).

The other thermocouple senses the temperature close to the heating elements and is connected to the second controller (element control)

Standard Control



Cascade Control



3) PLC Control Systems - *Programmable Logic Controllers*

Where process applications require the furnace temperature to be integrated with atmosphere control equipment,and/or, other mechanical devices then Elite Thermal is able to provide integrated bespoke PLC control solutions to meet your specific needs.

Digital Communications

Digital communications are available in RS232, & RS485 standards.

The controller communications module is wired to a panel mounted 'D' socket which is normally mounted on the furnace side panel for ease of access.

Note. The communications software, cables & converters are all chargeable options, and therefore if required should be ordered separately.

RS232	Allows a single controller to communicate with a single computer.
RS485	Allows multiple controllers to communicate with a single computer.
Ethernet	Ethernet connection for LAN and Remote communications with the controller. (Enabled controller only)."
Software	Elite Thermal offers the I-Tools software package to control the communications between the computer and the temperature controller(s). Other software can be supplied to suit the customers specific requirements.
Converters	RS232/RS485 converters allow the connection of a RS485 control system to a computer fitted with RS232 communications.

Peak Electrical Current Requirement Explained

It will be observed that the power requirement columns of the catalogue, for certain furnaces, list a second figure in brackets after the Max Power Kw figure.

With these furnaces, power to the heating elements is regulated on a time basis by reducing the"ON" time to give an average power output. However, during the "ON" time the elements will be consuming the power listed in brackets. Electrical supplies should therefore be rated to carry power stated in brackets. If in doubt, please contact our technical department for advice.

Furnaces Supplied Without Controls

1) The full cost of a controller cannot be passed on to the customer because each furnace has to be individually tested which requires a controller to be configured, fitted and removed after testing.

2) The furnace is supplied without any warranty because the controller setting/ performance is critical to the life of the furnace.

Elite Thermal's technical team have over 40 years experience in the design and maintenance of both laboratory and production scale furnaces. Elite Thermal personnel's take pride in providing the highest possible standard of customer care, together with the delivery of a comprehensive range of services designed to ensure that your furnaces will run safely and efficiently.

The range of services include

- Furnace maintenance contracts
- Furnace temperature distribution surveys
- Calibration checks on thermocouples & instrumentation
- Certificates can be supplied with results traceable to U.K. National Standards
- Results can be certified either on an "In House" basis or, to UCAS standards
- Certificates of accuracy can be issued for:-
  - The control thermocouple(s) showing accuracy at the number of test temperatures required
  - The temperature controller/programmer(s) can be certified at several different test points, or certified over the full working range
  - The temperature controller/programmer and thermocouple together as a unit
- Full refurbishment service covering insulation, electrics & instrumentation
- Thermocouple repair & replacement
- Equipment upgrades
- Operator training
- System safety checks
- Emergency breakdown attendance

We are pleased to assist in the repair and refurbishment of equipment not of our manufacture

Checklist of information required to place an order.

The following information is essential to enable our sales engineers to identify your precise requirements:-

- The intended use of the furnace together with a description of the process

  This should include:-
  - The maximum & continuous operating temperature required
  - What the process is and whether it generates aggressive volatiles or corrosive fumes, etc
  - The load material, type, size & weight
  - Do you need to process under atmosphere or vacuum
- Have you identified a furnace type / model from our literature
- What type of controls do you require - simple controllers or Programmable controllers
- The electrical supply, current rating that you have available. (refer below for supply information)
- Do you have any furnace size/ location restrictions (ie. does it need to fit in a fume cupboard, etc.)

Typical Supply Voltages

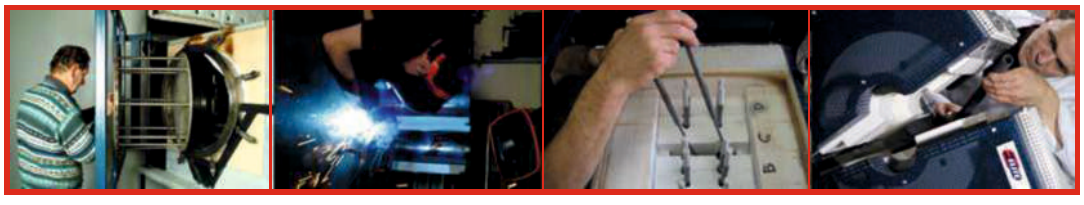
Typical single phase voltages are: 100,110,115,200,208,220,230 & 254 volts • Typical 3 phase voltages without neutral are: 220,380,400,415 & 440 volts • Typical 3 phase voltages with neutral are: 220/127, 380/220, 400/230 and 440/254

Peak Electrical Current Requirement Explained

It will be observed that the power requirement columns of the catalogue for certain furnaces list a second figure in brackets after the Max Power Kw figure

With these furnaces, power to the heating elements is regulated on a time basis by reducing the "ON" time to give an average power output

However, during the "ON" time, the elements will be consuming the power listed in brackets. Electrical supplies should therefore be rated to carry power stated in brackets. If in doubt, please contact our technical department for advice



Coal and Coke Testing Equipment

Automatic Plastometer, PF-12

Automatic Dilatometer, DF-4

Minimum Free Space Ovens (ASTM & ISO), MFSU

Volatile Matter Furnaces, VMF / ASTM

Volatile Matter (ISO) & Ashing Furnaces, VMF + ASH

Over the years, the variety of coal and coke tests that may be performed in a furnace or oven has been expanded. Elite Thermal has responded to the demands of each new standard by creating furnaces that are tailored to the particular needs of each test technique.

The scope covers international testing and evaluation of test techniques for coal and coke, such as ISO and ASTM.

Plastometer, PF-12

The PF-12 plastometer is intended for measuring plasticity properties of coal heated under the conditions defined by the ASTM D 2639 – 08 and ISO 10329 standard. The outcomes of the test are plasticity nature of the coal.

The PF-12 plastometer is a fully automatic, compact, single furnace instrument. A single furnace with molten solder bath is equipped with sophisticated control system of heating range and heating rate to ensure the required accuracy level to meet the requirements of ASTM D-2639-08, ISO 10329. For quick cooling, the furnace has a built-in fan (allowing another test to be started shortly afterwards).

Standard Features:

- Automatic crucible movement (up & down)
- Built – in exhaust device
- The temperature measurement failure detection
- Cooling of the furnace by the fan analysis
- Temperature (deg C) and Fluidity (D.D.P.M) and Stirrer speed (RPM) are displayed at the end of each test
- Automatic creation of *. csv files for statistical analysis

Specifications:

The operating temperature range	200 to 650 °C
Bath stirrer speed	300 to 1000 rpm
Fluidity/Plasticity range	1 - 100 000 D.D.P.M.

Temperature ramp	As per ASTM / ISO Test Methods
Plasticity resolution	Better than 0.1 D.D.P.M.
Crucible movement	Automatic (up & down)

Dilatometer, DF-4

Swelling rate (increase in volume when heated) is an important indicator of the quality of coal for coking. It is determined by a standard dilatometric test.

- In one measuring cycle, four samples can be measured
- Fully automated performance
- Auto-diagnostics of the equipment

From the expansion curves the following numerical parameters of the tested coal samples are obtained.

- Softening temperature
- Temperature of maximum contraction
- Temperature of maximum dilatation
- Value of maximum contraction
- Value of maximum dilatation

Specifications:

Temperature gradient / ramp	As per ASTM D 5515, ISO 23873, ISO 8264, ISO 349, DIN 51739 test methods
Dilatation measurement range	- 50 to + 400 %
Temperature display	In °C

Working range of sample heating	200 to 600 °C
Dilatation resolution	1%
Measurement of pistons' shifts	Contactless

Minimum Free Space Oven (ASTM & ISO)/MFSU

Measuring a sample's weight loss upon drying is one way to determine the amount of moisture in coal. As needed by the test criteria, the MFSU, which is utilized for this drying process, features a compact heated chamber that provides the lowest practical volume, or minimum free space.

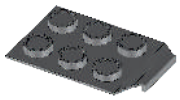
MFSU is a Universal Minimum free space oven that can work as per ASTM, ISO & BS test methods.

Standard Features:

- Maximum operating temperature: up to 210°C.
- The ovens have an aluminium chamber that resists oxidation and corrosion, resulting in excellent temperature uniformity over the working volume.
- Before accessing the front of the work chamber, the nitrogen or air flow passes through a preheating chamber and is adjustable via a flow meter mounted on the control panel.
- The MFSU operates with a regulated flow of moisture free bottled nitrogen which removes the moisture released by the coal at 105°C as per BS 1016-104.2:1991, BS ISO 687:2010 & BS ISO 11722:2013.
- The MFSU also operates with a regulated flow of air as per ASTM D3173-11.
- 3 Flow meters to monitor gas flow of Nitrogen, Air & Chamber seal integrity.
- Aluminium loading tray is supplied as standard accessory.

Optional Features & Accessories:

- Over temperature protection
- Multi segment, multi program storage Controllers
- Silica crucibles with well-fitted lids
- Vacuum desiccator with gas inlet & gas outlet



Sample loading tray with crucibles

Vacuum desiccator with gas inlet & gas outlet

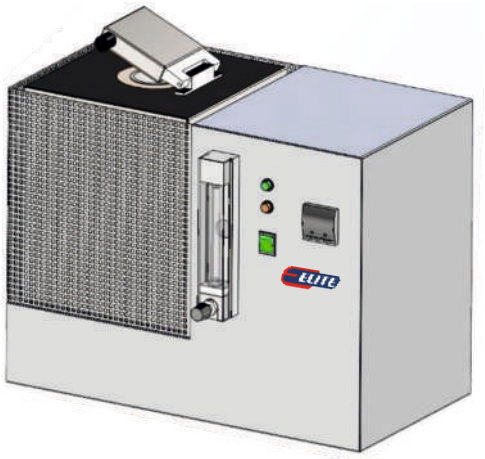
Volatile Matter Furnace, (VMF /ASTM)

The VM furnace is a bench mounted furnace specially designed for determination of volatile matter in coal and coke samples as per ASTM D3175-11.

The VM vertical furnace has a working bore of 50mm diameter and heated zone length of 190mm.

Specification:

- Maximum temperature: up to 1000°C.
- Continuous operating temperature: up to 950°C.
- Top opening furnace with 50 mm diameter and 150 mm deep.
- RCD (Residual current device) is fitted to provide enhanced operator safety.
- Protective outer mesh covers for improved operator safety.
- High grade resistance wire wound heating elements.
- Energy efficient, high quality, low thermal mass insulation.
- A rugged metal sheathed control thermocouple is protected from accidental damage and allows full use of work tube bore.
- Temperature measurement by using with 'N' type thermocouple
- High end microprocessor PID temperature controller to maintain the required temperature as per ASTM D3175-11.
- Wire crucible holder along with Inconel crucible & lid are supplied as standard.



VMF/ASTM
(N2 gas port with flow meter option)

Optional Features:

- N2 gas port with a flow meter
- Over temperature protection controller
- Metal cooling block for cooling the crucibles

Inconel crucible with lid

Volatile Matter & Ashing Furnace / VMF + ASH

This is a Universal chamber furnace that can work for Ashing & Volatile matter analysis as per ISO 562

This furnace offers temperature and response times to perform Volatile matter as per the requirements of BS ISO 562. This furnace also provides optimum ashing conditions to ensure complete combustion of the sample.

Standard Features:

- Chamber (mm) - H x W x D -220 x 220 x 310 (15 litres).
- Maximum temperature: up to 1200°C.
- Continuous temperature: up to1150°C.
- Heating elements located on 4 sides of the chamber ensure the rapid heating required for Volatile matter and Ash analysis.
- Protection of the elements from carbon build-up or corrosive atmosphere, inherent in the slab design makes it ideal for volatile matter analysis.
- An ashing feature which provides optimum combustion conditions within the chamber, and improved process fume removal from the chamber.
- A provision for closing the air inlet is provided while performing volatile matter analysis making it ideal for Ash and Volatile matter analysis.
- Vertical lifting door keeps the hot face away from the operator when the door is opened.
- Replaceable ceramic hearth tile is included as standard.
- Positive break door safety switch isolates heating elements from power supply when door is opened.
- High-end micro-processor PID controller.

Optional Features & Accessories:

- Over temperature protection controller
- Multi segment, multi program storage controllers
- Accessories set for Volatile matter
- Accessories set for Ash matter

Crucible

Crucible holder

UPCOMING LAUNCHES OF ADDITIONAL COAL AND COKE TESTING EQUIPMENT

- Gray king Coke Test Furnaces
- Combustion Tube Furnaces
- Coal Drying Ovens
- Coal Ashing Furnaces
- Swelling Number Index
- CO2 Reactivity Test Furnaces
- CRI - CSR Test Systems

Thermal Analysers

Ash Fusion Determinators & Thermogravimetric Analysers

Elite Thermal offers thermal analysers for the analysis of Coal, Fuels and Minerals. Elite Thermal has been manufacturing ash fusion determinators for over ten years now and has recently launched their thermogravimetric analysers

Setting the Standard for Thermal Process Solutions World Wide

Ash Fusion Determinators EATC16 | EATC17

- a step towards an improved Ash Fusibility Analysis

When any fuel is burned, an incombustible waste material is produced, commonly known as ash.
As the burning process progresses, the temperature of the combustion environment reaches a point where the ash particles start to melt.

This melting occurs because the heat energy breaks down the chemical bonds holding the ash particles together, causing them to transition from a solid state to a liquid state. Once the ash has melted, it begins to undergo a cooling process. As the melted ash cools down, it solidifies and forms clinkers.

Clinkers are hard, stony residues composed of the solidified ash particles, which frequently stick to the inner surfaces of the combustion chamber. Clinker build-up poses challenges for large coal furnaces, often requiring furnace closure for maintenance. Understanding the fusibility properties of coal ash facilitates temperature management to mitigate clinker formation.

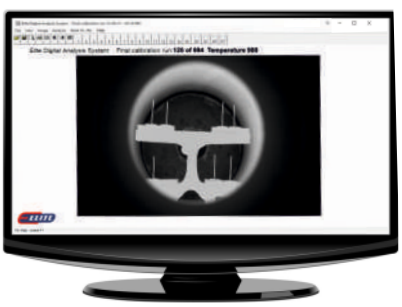
The Ash Fusion Temperature serves as an indicator of the point at which the ash undergoes a transition from a solid to a liquid state through melting. This temperature is a crucial parameter in the planning and execution of gasification systems.

Elite Thermal's Ash Fusion Determinator EATC16 automatically determines four critical temperatures:

- Initial Deformation Temperature (DT)
- Softening Temperature (ST)
- Hemispherical Temperature (HT)
- Fluid Temperature (FT)

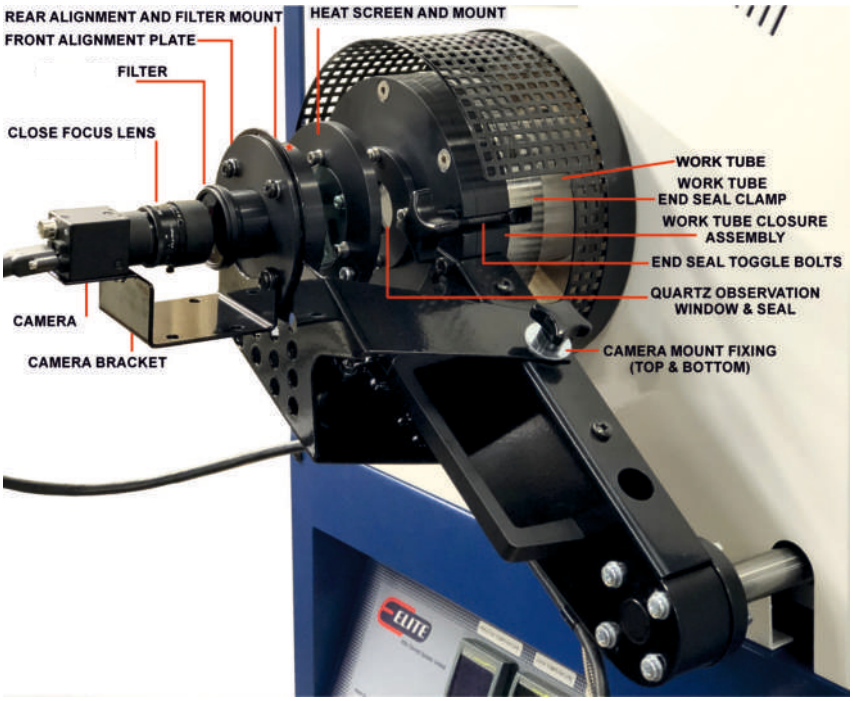
EATC16 key features

- Bench-mounted Ash Fusion Determinator.
- Maximum Furnace Temperature: 1600°C.
- Types of samples: Coal ash, coke ash, biomass ash, refuse-derived (RDF) ash, and solid biofuel ash.
- Number of samples: Up to 6 samples simultaneously per batch.
- Analysis parameters: Fusion points (DT, ST, HT, and FT) of ash samples.
- Type of analysis: Automatic or manual.



Features:

- Precisely controlled high-temperature horizontal resistance furnace.
- Maximum furnace temperature for EATC16: 1600°C.
- Furnace is capable of operating in both oxidising and reducing atmospheres.
- Programmable ramp rates for temperature ranges.
- Up to 6 samples can be analysed simultaneously for each batch.
- Automatic and continuous recording of images.
- Grid feature for accurate comparison of sample height and width.
- Storage of individual sample pictures 1°C by 1°C.
- Quick cooling facilitated by low thermal mass insulation allows for the completion of multiple tests within a day.



High Resolution Integrated Camera

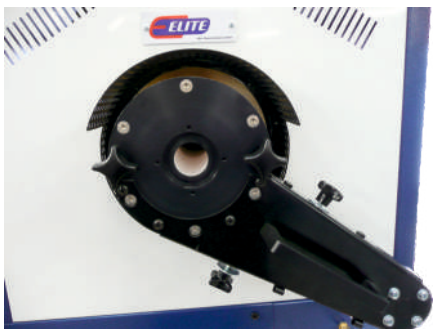
- A high-resolution camera with a manually adjustable lens mounted on a suitable arm is used to view the samples being tested.
- This setup allows for easy movement away from the furnace to access the work tube.
- The video image is sent to a high-end computer system where it is recorded and displayed in a specially created logging program.
- Accepts specimen shapes in accordance with ASTM, ISO, and DIN standards, including cylinder, pyramid, upright pyramid, and truncated pyramid.

Biomass Ash | RDF Ash | Fly Ash | Petroleum Coke Ash | Coal Ash | Low ash metallurgical coke

Ash Fusion Determinator (High Temperature Model) EATC17

Elite Thermal's Ash Fusion Determinator, EATC17 is the high - temperature floor-mount model, which works similarly to the EATC16, but for samples which fuse at higher temperatures. A maximum temperature of 1700° C can be achieved using heating elements consisting of molybdenum disilicide. The results obtained are similar for both EATC17 and EATC16 analysers.

EATC17



Front view of camera arm without camera

Camera arrangement

Control panel

Test Standards

Ash Material	Test standard	Reducing Gas	Oxidizing Gas
Coal & Coke Ash	ASTM D 1857	CO-CO_2 Ratio: 60% CO - 40+/-5 % CO_2, N_2 for purging	Air or O_2
Coal & Coke Ash	BS ISO 540	CO-CO_2 Ratio: 55% to 65% CO - 35% to 45% CO_2, N_2 for purging H_2- CO_2 Ratio: 45% to 55% H_2- 45% to 55% CO_2, N_2 for purging	Air or O_2
Fusibility Of Fuel Ash	DIN 51730	CO-CO_2 Ratio: 55% to 65% CO- 35% to 45% CO_2, N_2 for purging H_2- CO_2 Ratio: 45% to 55% H_2- 45% to 55% CO_2, N_2 for purging	Air or O_2
RDF Ash	ASTM E953	CO-CO_2 Ratio: 60% CO - 40+/-5 % CO_2, N_2 for purging	Air or O_2
Solid Recovered Fuels	CEN/TR 15404:2010	CO-CO_2 Ratio: 55% to 65% CO - 35% to 45% CO_2, N_2 for purging	Air or O_2
Solid Biofuels	ISO 21404	CO-CO_2 Ratio: 55% to 65% CO- 35% to 45% CO_2, N_2 for purging H_2- CO_2 Ratio: 45% to 55% H_2- 45% to 55% CO_2, N_2 for purging	Air or O_2

Technical Specifications

Specifications	EATC16	EATC17
Temperature Range	up to 1600 °C	up to 1700 °C
Temperature Ramp Rate	Programmable up to 12 °C/minute	Programmable up to 12 °C/minute
Work Tube dimensions	90 x 76 x 675mm	86 x 76 x 675mm
Heating Elements	High temperature resistance type heating elements - 6 nos	High temperature resistance type heating elements - 4 nos
Maximum Sample Load	6 Samples per analysis	6 Samples per analysis
Conforms to Standards	BS ISO 540; ASTM D 1857; CEN/TS 15370-1; CEN/TR 15404:2010	BS ISO 540; ASTM D 1857; CEN/TS 15370-1; CEN/TR 15404:2010
Ash Fusibility Determination	Automatic determination of DT, ST, HT, FT fusion temperatures	Automatic determination of DT, ST, HT, FT fusion temperatures
Analysis Time	4 hours typical cycle time (depending ramp rate and temperature range)	4 hours typical cycle time (depending ramp rate and temperature range)
Image Collection	up to 30 frames/minute	up to 30 frames/minute
Gas Requirements **Purge** **Oxidizing** **Reducing**	 N_2 O_2 or Air CO + CO_2 or H_2 + CO_2	 N_2 O_2 or Air CO + CO_2 or H_2 + CO_2
Exhaust	Pipe to be vented into a separate fume hood	Pipe to be vented into a separate fume hood
Power supply	380 – 415 V, 50/60 Hz two phase 25A	380 – 415 V, 50/60 Hz two phase 32A
Environment Conditions **Operating Conditions** **Relative Humidity**	 5 °C – 40 °C 20% to 80% (Non-Condensating)	 5 °C – 40 °C 20% to 80% (Non-Condensating)
Required PC Specifications	Intel core i5 or above, 256GB SSD, 16GB RAM, Windows OS	Intel core i5 or above, 256GB SSD, 16GB RAM, Windows OS

Thermogravimetric Analysers TGA et250

Elite Thermal's Thermogravimetric Analysers (TGAs) are high-performance proximate analysers that measure the weight change of a sample as a function of temperature. They are used to study the thermal stability and composition of materials. Elite Thermal's TGAs are utilised for the determination of moisture, ash, volatile matter, fixed carbon, and loss on ignition (LOI) in a wide range of organic, inorganic, and synthetic materials.

Elite Thermal offers a range of TGAs to meet the needs of different applications. TGA et250 is a versatile instrument that features a programmable furnace and an integrated balance, enabling fast and accurate measurements. TGA et250 can analyse up to 19 samples simultaneously and employs a single carousel design for holding crucibles. TGA et250 is a cost-effective instrument that is ideal for basic TGA applications with manual handling of crucible lids.

Elite Thermal's Thermogravimetric analysers replace traditional analytical techniques that are labour-intensive, slow, and susceptible to operational errors. TGA et250 comes with an integrated balance that combines drying, ashing, and weighing processes, thereby improving efficiency, precision, and providing high sample throughput.

Elite Thermal's TGA systems comply with several international standards, including ASTM, ISO, DIN, EN, and more. Elite Thermal's TGAs find applications in various industries, including coal, coke, mineral ores, cement, limestone, foodstuffs, feeds, and many more.

A typical coal analysis method consists of determining moisture, volatile matter, and ash content. Customisation options within the software encompass temperature ramping, start and end temperatures, gas flow programming, and mass constancy criteria, guaranteeing a fully adaptable instrument that meets the unique demands of every user.

TGA et250 key features

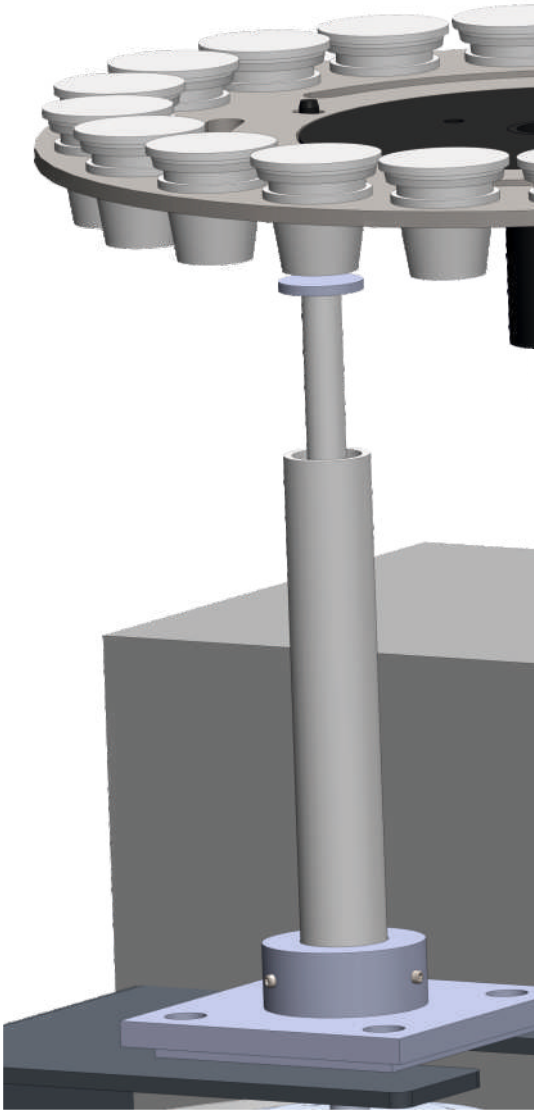
- Single Carousel design.
- Analysis of up to 19 samples.
- Manual handling of Crucible lids.
- Samples: Organic, Inorganic & Synthetic.
- Parameters: Moisture, Volatiles, Ash, LOI & Fixed Carbon.

Robust Heating Elements

- High power thermal elements facilitate quick temperature ramp-up and provide exceptional temperature stability.
- Embedded heating elements ensure uniform temperature inside the furnace chamber throughout the analysis cycle.
- Higher maximum temperature range upto 1100 °C.

Effective Temperature Control

- Best-in-class temperature set point control is achieved through the use of Two high precision thermocouples.
- The first thermocouple to monitor the furnace temperature. Second thermocouple to monitor the sample temperature precisely.
- Additional thermocouples are available as an optional feature. In addition to the two thermocouples mentioned above, a third thermocouple is provided for monitoring the lower furnace, and a fourth thermocouple provides temperature cross-verification and temperature calibration functionality.
- These third and fourth thermocouples are factory-installed options. They must be ordered along with the main TGA et250 instrument.



Precise Weighing System

- TGA et250 is integrated with a top-loading balance featuring an inbuilt auto-calibration facility and the ability to weigh the sample crucibles repeatedly throughout the analysis.
- Thermally isolated balance for accurate weighing.
- High-resolution balance ensuring accuracy to 0.0001 g for precise results.

Exceptional Analytical Performance

- State-of-the-art thermogravimetric analyser featuring robust hardware and user-friendly software encased in a durable design, delivering exceptional analytical capabilities.
- TGA et250 is constructed using high-quality materials, ensuring superior functionality and performance even in challenging conditions, and offering consistent operation and reliability.
- The carousel is constructed from specialised materials that withstand high temperature stress without warping.
- TGA et250 is available in a dual furnace package which allows for two TGAs to be operated from a single PC for laboratories that require the highest sample throughput.

Superior Carousel Mechanism

- Single carousel for holding crucibles with manual handling of crucible lids.
- The carousel accepts 19 samples and 1 reference.
- Carousel MOC: Either Metal or Ceramic.
- Bi-directional movement and ability to skip empty positions for faster analysis times.
- Up-and-down movement of the carousel using pneumatic control and motorised rotation enables precise and accurate analysis without any oscillation.

Exhaust & Cooling System

- In-built exhaust system with two internal blowers minimises harmful vapours and odours in the laboratory.
- Cooldown process is automatically initiated at the end of each analysis cycle.
- User programmable furnace lid opening to improve cool down time.
- External exhaust system is optionally available for even faster cooling.

Gas Flows

- With TGA et250, users can seamlessly transition between oxidizing and inert atmospheres through automated controls.
- An optional feature includes a software-controlled mass flow controller, which enables programmable adjustment of gas flow rates.

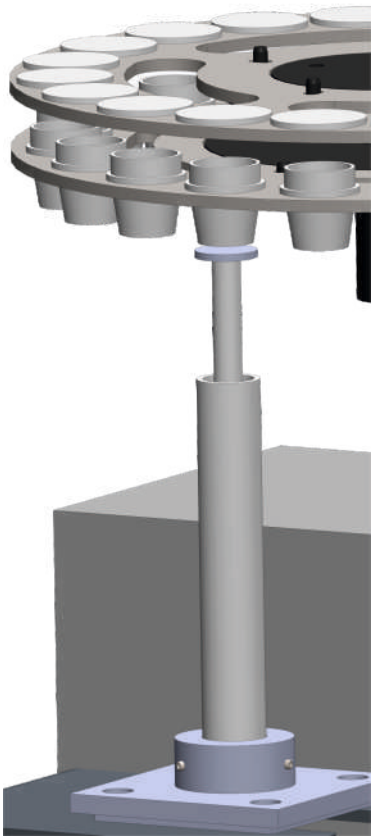
Thermogravimetric Analysers TGA et500

The TGA et250 and TGA et500 are essentially the same in terms of features, except that the TGA et500 comes with a dual carousel configuration, differing in their operating mechanisms. The TGA et500 features two carousels for placing crucibles and their lids.

Elite Thermal's TGA et500 is a dual carousel thermogravimetric analyser, distinguished by its unique capability of controlling crucible lids. During typical analysis, the lower carousel is used for placing crucibles, while the upper carousel is used for placing crucible lids. The TGA et500 Instrument utilises a pneumatic carousel mechanism for accurate crucible placement. The movement of the carousel from one crucible position to another is motorized, and the up and down mechanism of the carousel is controlled pneumatically. The carousel is made of special materials that are not susceptible to warping under high-temperature stress.

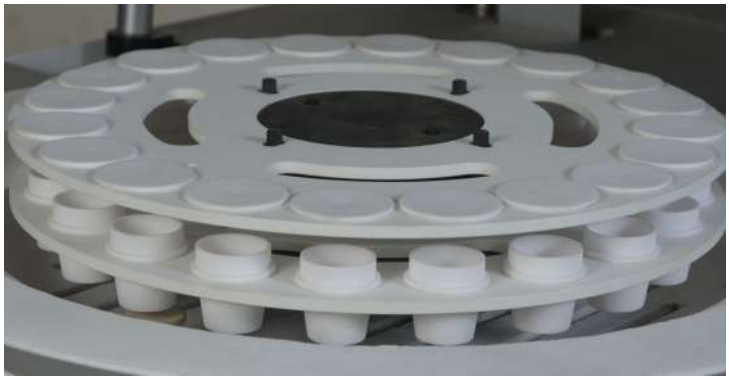
TGA et500 key features

- Dual Carousel design.
- Analysis of up to 19 samples.
- Fully Automatic analysis.
- Samples: Organic, Inorganic & Synthetic.
- Parameters: Moisture, Volatiles, Ash, LOI & Fixed Carbon.
- Automatic placement & removal of crucible lids.



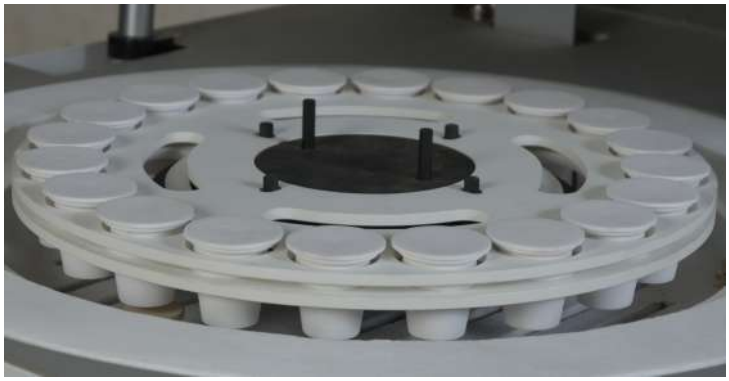
Precise Temperature Regulation

- Best-in-class temperature setpoint control is achieved through the use of four thermocouples.
- The first thermocouple is used to detect the upper furnace temperature, while the second is used for lower furnace temperature detection. The third thermocouple is employed for real-time temperature measurement of the sample, and finally, the fourth thermocouple provides temperature cross-verification and temperature calibration functionality.



Crucible lids open

Weighing with crucible lids open



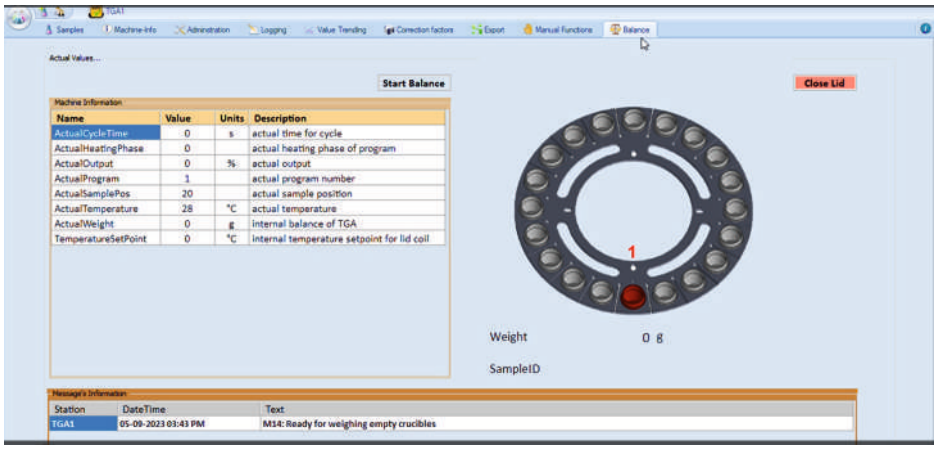
Crucible lids closed

Weighing with crucible lids closed

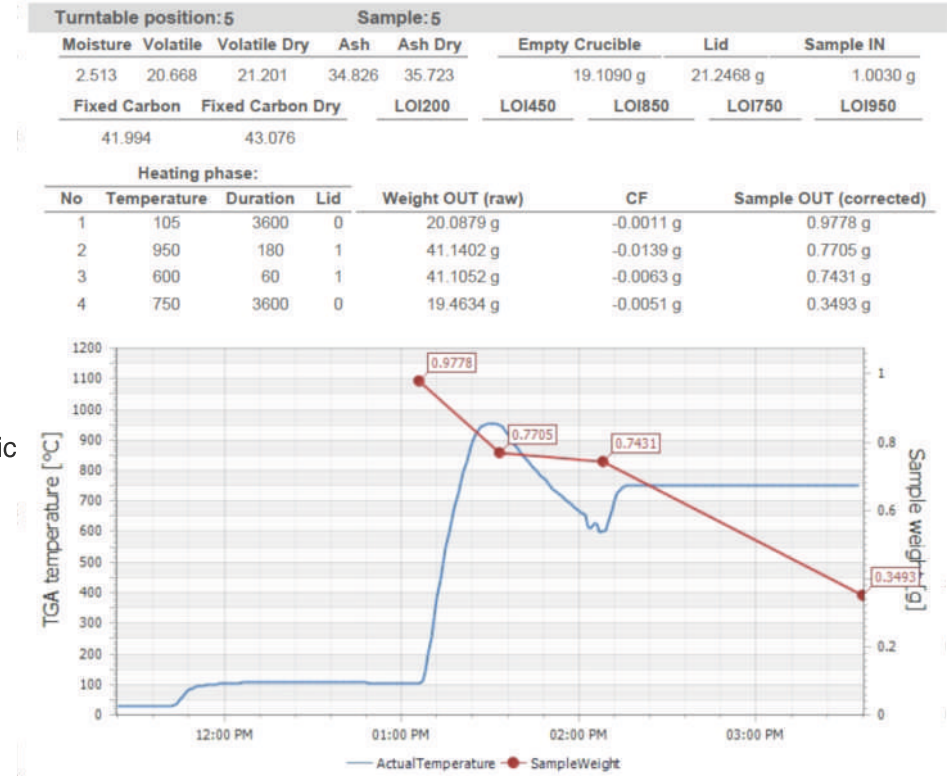
- TGA et500 employs two carousels, each built with high strength and corrosion-resistant materials. One carousel is designated for crucibles, while the other is designated for crucible lids.
- The carousels are constructed using a unique material that exhibits exceptional resistance to warping when exposed to elevated levels of thermal stress.
- The second carousel enables the automated placement and removal of crucible lids within the furnace, eliminating the need to open the furnace lid.
- The dual carousel design offers enhanced precision in the measurement of volatile matter along with automated functionality, thereby preventing any potential sample oxidation.
- Automatic crucible management removes the risk of potential burns to the operator when exposed to elevated temperatures, as well as removes the possibility of the operator inadvertently dropping the crucible lids into the furnace.

Software Features

- The user-friendly software enables complete control of the analyser through a graphical interface. It provides visual representations of temperature versus weight loss measurements, as well as real-time displays of parameters such as furnace temperature, sample status, and remaining time.

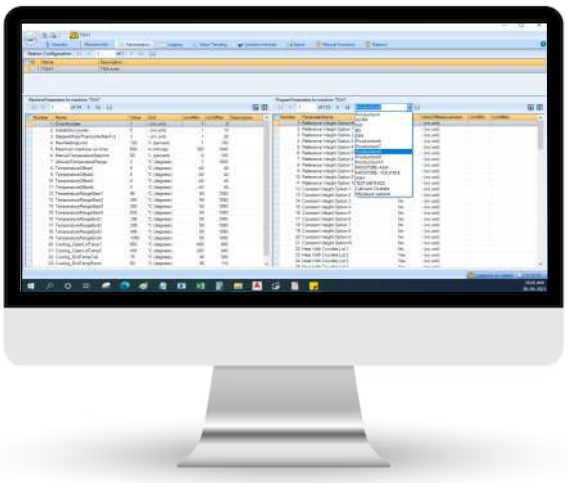


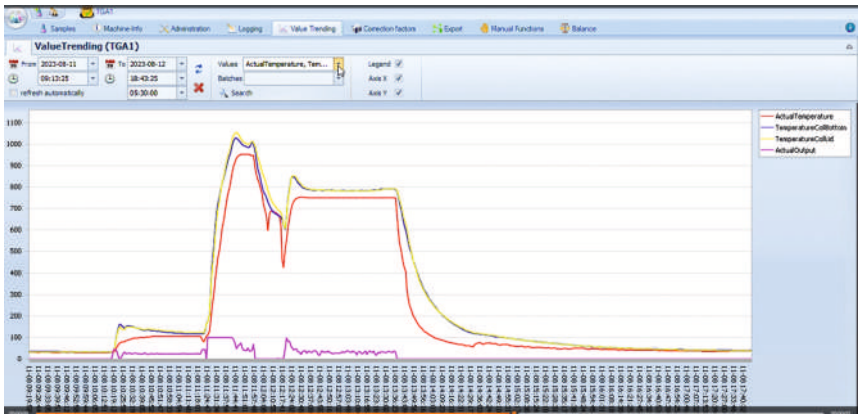
- The software provides flexible method settings, including temperature ramps, set points, programmable gas flows, and options for placing or removing crucible lids, as well as criteria for maintaining mass constancy. These settings cater to various customer applications such as moisture determination, volatile matter determination, Loss on Ignition (LOI) determination, and ash determination.



- TGA et250 & TGA et500 come pre-programmed with 10 in-built standard methods for analysing coal samples in accordance with ASTM and ISO standards. Additionally, the software enables users to configure up to 16 custom methods based on their specific requirements.

- The software offers a versatile sample login and loading procedure, accompanied by real-time graphical representations of analysis data.





Test Methods

Elite Thermal's TGA et250 & TGA et500 complies with the following test methods.

Coal & Coke

Mineral Ores

Gypsum & Hydrated lime

Soil & Fertiliser

Cement & Building Materials

Food & Feed

Standard	Title of the standard
ASTM D7582-15	Standard Test Methods for Proximate Analysis of Coal and Coke by Macro Thermo Gravimetric Analysis.
ASTM D5142	Standard Test Methods for Proximate Analysis of the Analysis Sample of Coal and Coke by Instrumental Procedures.
ISO 562	Hard Coal and Coke - Determination of volatile matter.
ASTM D7348	Standard Test Methods for Loss on Ignition (LOI) of Solid Combustion Residues.
DIN 51718	Testing of solid fuels - Determination of the water content and the moisture of analysis sample.
ASTM E1755	Standard Test Method for Ash in Biomass.
DIN 51719	Determination of ash in solid mineral fuels.
ISO11722	Solid mineral fuels - Hard coal - Determination of moisture in the general analysis test sample by drying in nitrogen.
ISO1171	Solid mineral fuels - Determination of Ash.
EN 15148	Solid biofuels - Determination of the content of volatile matter.
ISO/TR 18230	Determination of Loss on Ignition - Non oxidized ores.
ASTM C114	Determination of Loss on Ignition of Hydraulic Cement.
ISO 806	Aluminum Oxide Primarily used for the product of aluminium - Determination of loss of mass at 300°C and 1000°C.
EN 14775	Solid biofuels - Determination of Ash content.
AS1038	Proximate analysis & Testing.
BS1016	Proximate analysis.

Technical Specifications

Specifications	TGA et250	TGA et500
Temperature Range	Programmable from ambient to 1100° C	Programmable from ambient to 1100° C
Temperature Control Precision	±2 deg C (or) ±2% of set point temperature	±2 deg C (or) ±2% of set point temperature
Temperature Stability	±2 deg C (or) ±2% of set point temperature	±2 deg C (or) ±2% of set point temperature
Ramp Rate	Programmable from 10° C /minute to 50° C /minute	Programmable from 10° C /minute to 50° C /minute
Balance	Integrated Balance	Integrated Balance
Balance Resolution	0.0001g (0.1mg)	0.0001g (0.1mg)
Balance Readability	0.0001g (0.1mg)	0.0001g (0.1mg)
Weight Loss	0 to 100%	0 to 100%
Sample Size	up to 10 grams based on the sample type and its characteristics	up to 10 grams based on the sample type and its characteristics
Number of Samples	19 Samples +1 Reference	19 Samples +1 Reference
Number of Carousels	One for crucibles and crucible lids	Two (one for crucibles and the other for crucible lids)
Carousel Material	Metal or Ceramic	Metal or Ceramic
Weighing Precision	0.02% RSD (on inert samples)	0.02% RSD (on inert samples)
Electrical Power Requirements	230V (± 10%) / single phase / 50/60Hz / 15A	230V (± 10%) / single phase / 50/60Hz / 15A
Computer	230V (± 10%) / single phase / 50/60Hz / 2A	230V (± 10%) / single phase / 50/60Hz / 2A

Innovative solutions for your Applications

- Aerospace
- Automotive
- Cement Industry
- Ceramics
- Coal Industry
- Education
- Electronics
- Finishing Industry
- Glass
- Materials Testing
- Metals Industry
- Nuclear
- Petrochemicals
- Quality Assurance
- Research
- Superconductivity

www.elitefurnaces.com


Elite Court, 6 Stuart Road, Market Harborough, Leicestershire, UK


F3, Welland Business Park, Market Harborough, UK

Elite Thermal Systems Limited
Elite Court, 6 Stuart Road,
Market Harborough,
Leicestershire
LE16 9PQ, UK

Tel: +44 (0)1858 469834
E-mail: contact@elitefurnaces.com

Setting the Standard for Industrial and Research Furnaces