



TF TUBE FURNACE RANGE

Carbolite's versatile new TF tube furnace range incorporates high-quality heating elements and innovative thermal insulation design to achieve first class performance while maintaining both reduced case temperatures and power consumption.

The TF range has been designed with flexibility in mind. Slide-in accessory work tubes and the use of tube adapters allow a single furnace to accommodate a variety of tube diameters, whilst the work tubes themselves can easily be exchanged to meet the different physical or chemical requirements of a process.

Optional work tube packages enable users to equip the TF for operation under vacuum or modified atmosphere.

OVERVIEW

Max temp

1100, 1200, 1600°C

Furnace Ø

32, 60, 100, 125 mm

Heated length(s)

150, 180, 300, 450, 600, 800,
1000, 1200 mm

Number of heated zones

1 zone or 3 zones

Orientation

All models available orientated either horizontally or vertically

TF TUBE FURNACE RANGE

LEADING HEAT TECHNOLOGY

Carbolite's new tube furnace range is at the pinnacle of furnace design. The culmination of over 80 years of experience in thermal engineering; combining the latest technological developments with solid construction, high-quality components and a sleek, modern aesthetic.

HIGH QUALITY HEATING ELEMENTS

- | Excellent temperature uniformity
- | Fast heat-up and cool-down rates
- | Unsurpassed temperature uniformity along the entire heated length

HIGH QUALITY THERMAL INSULATION

- | Low energy consumption
- | Low external case temperature
- | Designed for longevity



[Click to view video](#)

Product Video: TF Tube Furnace Range

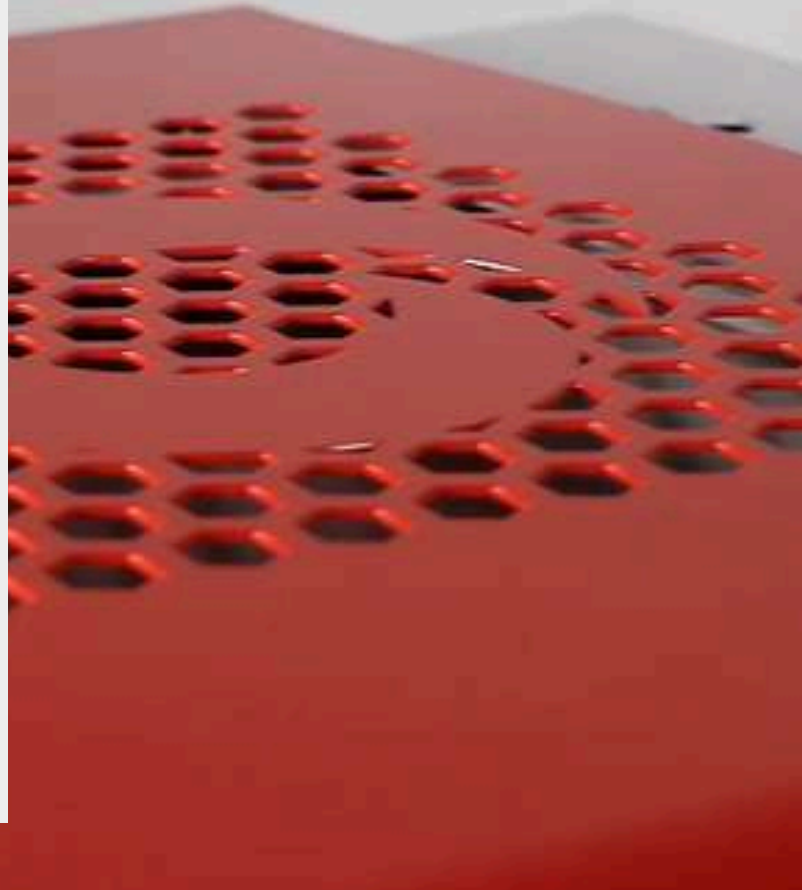
TF TUBE FURNACE RANGE

EXCELLENT TEMPERATURE UNIFORMITY: HOT STUFF!

Carbolite's tube furnace range boasts a variety of technical features to maximise the heated length of the furnace, ensuring that as much of the work tube as possible is heated to the setpoint temperature. These include heating elements evenly distributed around the work tube and low thermal mass insulation.

To achieve the longest possible heated length, our 3-zone models feature increased power boosting at the ends of the furnace, ensuring the best possible temperature uniformity throughout the working volume.

Combining your furnace with work tube packages that include thermal insulation plugs or radiation shields helps prevent thermal losses from the ends of the work tube. Carbolite are hard to beat, when it comes to the uniform distribution of heat!



TF TUBE FURNACE RANGE

TEMPERATURE CONTROL & COMMUNICATIONS

TF tube furnaces are equipped with ethernet communications and a programmable controller with 24 segments as standard:

- | Single zone furnaces fitted with Carbolite EPC3016P1 controller
- | Three zone furnaces fitted with Carbolite CC-T1 touch-screen controller

OPTIONS

- | Over-temperature protection (recommended to protect valuable contents and for unattended operation); 1600°C models are equipped with this option as standard
- | A range of sophisticated digital controllers, multi-segment programmers and data loggers is available. These can be fitted with RS232, RS485 or Ethernet communications. - More Information.



CC-T1 Touch Screen Controller

TF TUBE FURNACE RANGE

RAPID HEATING RATES

Carbolite tube furnaces are equipped with high-quality heating elements designed to achieve fast heat-up rates.

Optimise your lab time by speeding up your heat treatment processes!

Precise temperature measurements are carried out in the Carbolite testing laboratory and available for all models.

TF TUBE FURNACE RANGE

MOUNTING CONFIGURATIONS

This range of tube furnaces is supplied in one of two standard mounting configurations.

1. For heated lengths up to 600 mm the furnace body is mounted on top of the control box. The furnace body can easily be detached and separated for remote operation.
2. For heated lengths of 800 mm and above the furnace body and control box are always separate.

Both configurations include a 2 metre cable (furnaces with 125 mm Ø incl. plug and socket) between the furnace body and control box. This flexible arrangement allows for easy conversion to optional mounting arrangements e.g. attaching to a vertical stand, a mounting bracket or inside a fume cupboard.



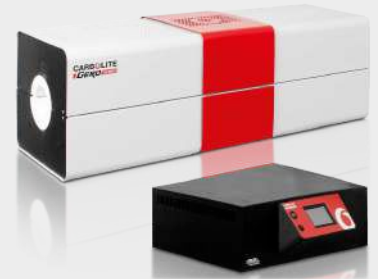
FURNACE BODY ON TOP OF CONTROL BOX

Configuration for heated lengths up to 600 mm



DETACHABLE FURNACE BODY

Easy conversion to optional mounting arrangements



FURNACE BODY AND SEPARATE CONTROL BOX

Configuration for heated lengths of 800 mm and above



OPTION: VERTICAL STAND

Vertical mounting stand for the furnace body



OPTION: MOUNTING BRACKET

Used to mount the furnace body to customer equipment



OPTION: 4 M CABLE EXTENSION

4 m long extension results in a total of 6 m between furnace body and control box (125 mm Ø models include plug and socket)

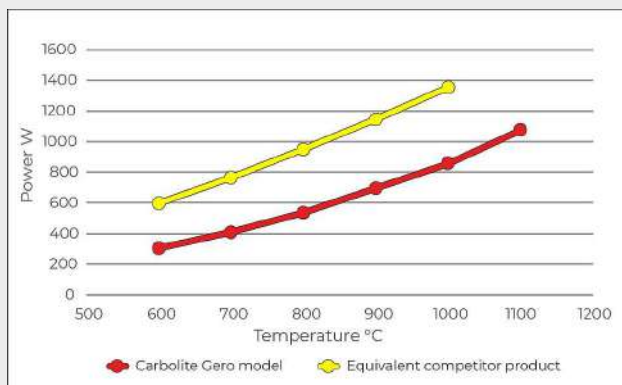
HIGH-QUALITY THERMAL INSULATION

LOW ENERGY CONSUMPTION

Carbolite's new tube furnaces are very energy-efficient. Their high-quality thermal insulation is designed for longevity, low case temperature and most of all outstandingly low energy consumption.

Using a Carbolite tube furnace reduces your energy cost as well as the carbon footprint.

UP TO 50% LESS ENERGY REQUIRED! COMPARISON WITH EQUIVALENT COMPETITOR PRODUCT



Energy consumption for exemplary Carbolite TF1 12/60/600 model (red) and equivalent competitor product (yellow); measured at each temperature after 2 hours soak.

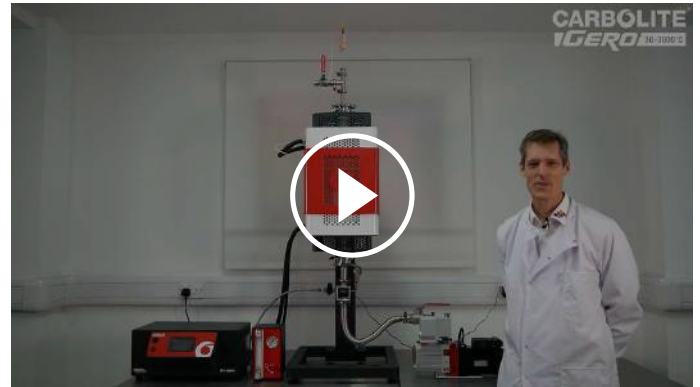
TF TUBE FURNACE RANGE

MODIFIED ATMOSPHERE & VACUUM EQUIPMENT

Carbolite tube furnaces may be equipped with many different options to accommodate modified atmosphere and/or vacuum applications.

OPTIONS

- | A range of additional work tubes, end seals and complete work tube packages
- | Vacuum packages with a choice of rotary vane pumps or turbomolecular pumps
- | Inert gas package modules allow for the use of up to 3 non-reactive gases (available with either manual or automatic control)
- | Laboratory Gas Safety System for safe use with hydrogen above 750 °C



[Click to view video](#)

Introduction to modified atmosphere and vacuum options for tube furnaces

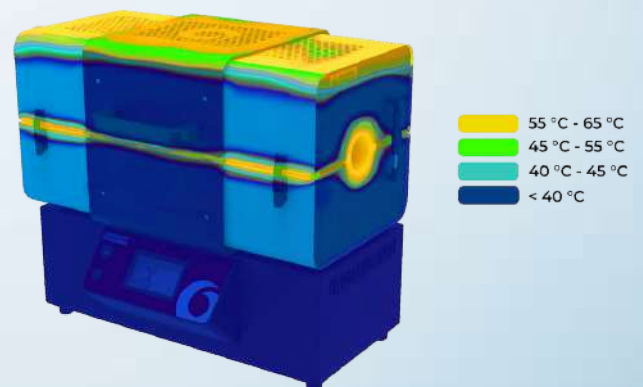
TS SPLIT TUBE FURNACE RANGE

THAT'S COOL! LOW CASE TEMPERATURE

Carbolite tube furnaces are designed with user safety in mind.

The robust construction and high-quality thermal insulation ensure that external case temperatures are much lower than other models.

Not only does this help mitigate the risk of injury to the operator, the reduction in the amount of heat escaping the furnace ensures a comfortable working environment, and also means that less energy is wasted during use. When the heat is on, Carbolite can help you keep a cool head!



TF TUBE FURNACE RANGE

ACCESSORIES



LARGE SELECTION OF WORK TUBES

Wide choice of tube diameters, lengths & materials



INSULATION PLUGS & RADIATION SHIELDS

Prevent heat loss & improve temperature uniformity

TF TUBE FURNACE RANGE

TECHNICAL DATA

	TF1 11/32/150	TF1 12/60/150	TF1 12/60/300
Number of heated zones	1	1	1
Max temp (°C)	1100	1200	1200
Furnace Ø	32	60	60
Heated length (mm)	150	150	300
Heat-up time (mins)	27	40	35
Tube length for use in air (mm)	300	430	580
Tube length for use with modified atmosphere (mm)	500	600	750
Dimensions:			
External H x W x D (mm)	455 x 335 x 470	575 x 485 x 480	575 x 495 x 480
Uniform length ±5°C (mm)	58	93	177
Max power (W)	575	750	1500
Weight (kg)	16	31	37

	TF1 12/60/450	TF1 12/60/600	TF1 12/125/400
Number of heated zones	1	1	1
Max temp (°C)	1200	1200	1200
Furnace Ø	60	60	125
Heated length (mm)	450	600	400
Heat-up time (mins)	45	45	88
Tube length for use in air (mm)	730	880	750
Tube length for use with modified atmosphere (mm)	900	1050	1000
Dimensions:			
External H x W x D (mm)	575 x 645 x 480	575 x 795 x 480	665 x 665 x 480
Uniform length ±5°C (mm)	318	474	284
Max power (W)	2000	2500	1860
Weight (kg)	49	56	71

	TF1 12/125/600	TF1 12/125/800	TF1 12/125/1000
Number of heated zones	1	1	1
Max temp (°C)	1200	1200	1200
Furnace Ø	125	125	125
Heated length (mm)	600	800	1000
Heat-up time (mins)	90	85	80
Tube length for use in air (mm)	950	1150	1350
Tube length for use with modified atmosphere (mm)	1200	1400	1600
Dimensions:			
External H x W x D (mm)	665 x 865 x 575	445 x 1065 x 575*	445 x 1265 x 575*
Uniform length ±5°C (mm)	456	635	847
Max power (W)	2510	3160	3810
Weight (kg)	89	102	120

	TF1 12/125/1200	TF1 16/60/180	TF1 16/60/300
Number of heated zones	1	1	1
Max temp (°C)	1200	1600	1600
Furnace Ø	125	60	60
Heated length (mm)	1200	180	300
Heat-up time (mins)	82	--	--
Tube length for use in air (mm)	1550	680	800
Tube length for use with modified atmosphere (mm)	1800	900	1020
Dimensions:			
External H x W x D (mm)	445 x 1465 x 575*	665 x 595 x 585	665 x 715 x 585
Uniform length ±5°C (mm)	969	100	175
Max power (W)	4460	2500	4000
Weight (kg)	134	43	51

	TF1 16/100/450	TF1 16/100/600	TF3 12/60/450
Number of heated zones	1	1	3
Max temp (°C)	1600	1600	1200
Furnace Ø	100	100	60
Heated length (mm)	450	600	450
Heat-up time (mins)	--	--	55
Tube length for use in air (mm)	1030	1180	730
Tube length for use with modified atmosphere (mm)	1250	1400	900
Dimensions:			
External H x W x D (mm)	790 x 940 x 705	790 x 1090 x 705	575 x 645 x 480
Uniform length ±5°C (mm)	320	425	340
Max power (W)	6000	7000	2000
Weight (kg)	90	100	49

	TF3 12/60/600	TF3 12/125/600	TF3 12/125/800
Number of heated zones	3	3	3
Max temp (°C)	1200	1200	1200
Furnace Ø	60	125	125
Heated length (mm)	600	600	800
Heat-up time (mins)	55	90	85
Tube length for use in air (mm)	880	950	1150
Tube length for use with modified atmosphere (mm)	1050	1200	1400
Dimensions:			
External H x W x D (mm)	575 x 795 x 480	665 x 865 x 575*	445 x 1065 x 575*
Uniform length ±5°C (mm)	501	507	715
Max power (W)	2500	2510	3160
Weight (kg)	56	89	102

	TF3 12/125/1000	TF3 12/125/1200	TF3 16/100/450
Number of heated zones	3	3	3
Max temp (°C)	1200	1200	1600
Furnace Ø	125	125	100
Heated length (mm)	1000	1200	450
Heat-up time (mins)	80	82	--
Tube length for use in air (mm)	1350	1550	1030
Tube length for use with modified atmosphere (mm)	1600	1800	1250
Dimensions:			
External H x W x D (mm)	445 x 1265 x 575*	445 x 1465 x 575*	790 x 940 x 705
Uniform length ±5°C (mm)	855	1055	375
Max power (W)	3810	4460	6800
Weight (kg)	120	134	90

TF3 16/100/600

Number of heated zones	3
Max temp (°C)	1600
Furnace Ø	100
Heated length (mm)	600
Heat-up time (mins)	--
Tube length for use in air (mm)	1180
Tube length for use with modified atmosphere (mm)	1400
Dimensions:	
External H x W x D (mm)	790 x 1090 x 705
Uniform length ±5°C (mm)	460
Max power (W)	8000
Weight (kg)	100

MODEL NAMES EXPLAINED

TF1 11/32/ 150	Number of heated zones: 1 zone or 3 zones
TF1 11/32/ 150	Max temp: 1100, 1200, 1600 °C
TF1 11/32/150	Furnace Ø: 32, 60, 100, 125 mm
TF1 11/ 32/150	Heated length(s): 150, 180, 300, 450, 600, ... mm

PLEASE NOTE

- | Heat up time is measured to 100 °C below max, using an empty quartz tube & insulation plugs
- | Heat up rate when using an optional ceramic work tube must be limited to 5 °C/min
- | Holding power is measured at continuous operating temperature
- | Uniform temperature lengths are measured with insulation plugs fitted at 100°C below maximum temperature
- | Maximum continuous operating temperature is 100 °C below maximum temperature
- | 1100°C and 1200°C models are equipped with thermocouple type N, 1600°C models with type R
- | * Furnace with separate control box

www.carbolite.com/tf