

# TF TUBE FURNACE RANGE



TF1 16/60/300 with CC-T1 temperature programmer

**Carbolite Gero'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 Gero'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



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**TEMPERATURE CONTROL & COMMUNICATIONS**



CC-T1 Touch Screen Controller

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

- | Single zone furnaces fitted with Carbolite Gero EPC3016P1 controller
- | Three zone furnaces fitted with Carbolite Gero 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.

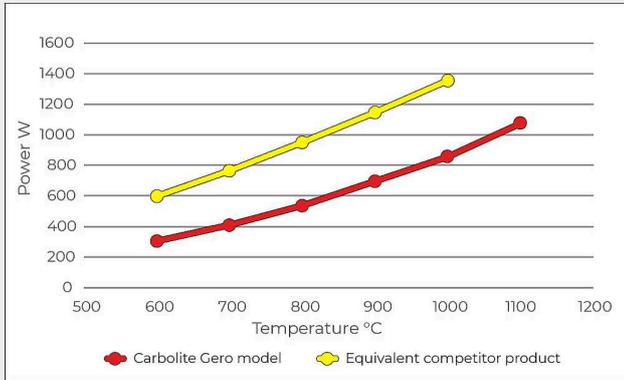
HIGH-QUALITY THERMAL INSULATION

**LOW ENERGY CONSUMPTION**

Carbolite Gero'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 Gero 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 Gero TF1 12/60/600 model (red) and equivalent competitor product (yellow); measured at each temperature after 2 hours soak.*

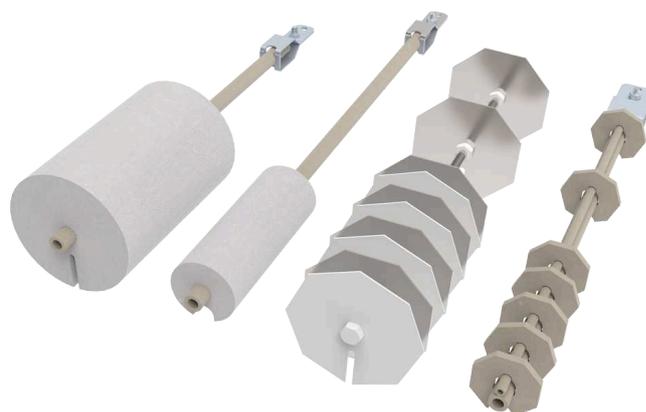
TF TUBE FURNACE RANGE

**ACCESSORIES**



**LARGE SELECTION OF WORK TUBES**

A wide choice of tube diameters, lengths and materials.



**INSULATION PLUGS & RADIATION SHIELDS**

To prevent heat loss and improve temperature uniformity.

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

Standard configuration for heated lengths up to 600 mm



### DETACHABLE FURNACE BODY

Easy conversion to optional mounting arrangements



### FURNACE BODY AND SEPARATE CONTROL BOX

Standard 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**

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

TF TUBE FURNACE RANGE

## MODIFIED ATMOSPHERE & VACUUM EQUIPMENT

Carbolite Gero 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

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

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

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

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

	TF1 16/100/450	TF1 16/100/600	TF3 12/60/450
<b>Number of heated zones</b>	1	1	3
<b>Max temp (°C)</b>	1600	1600	1200
<b>Furnace Ø</b>	100	100	60
<b>Heated length (mm)</b>	450	610	450
<b>Heat-up time (mins)</b>	--	--	55
<b>Tube length for use in air (mm)</b>	1030	1180	730
<b>Tube length for use with modified atmosphere (mm)</b>	1250	1400	900
<b>Dimensions:</b>			
<b>External H x W x D (mm)</b>	790 x 940 x 705	790 x 1090 x 705	575 x 645 x 480
<b>Uniform length ±5°C (mm)</b>	320	425	340
<b>Max power (W)</b>	6000	7000	2000
<b>Weight (kg)</b>	90	100	49

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

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

**TF3 16/100/600**

<b>Number of heated zones</b>	3
<b>Max temp (°C)</b>	1600
<b>Furnace Ø</b>	100
<b>Heated length (mm)</b>	610
<b>Heat-up time (mins)</b>	--
<b>Tube length for use in air (mm)</b>	1180
<b>Tube length for use with modified atmosphere (mm)</b>	1400
<b>Dimensions:</b>	
<b>External H x W x D (mm)</b>	790 x 1090 x 705
<b>Uniform length ±5°C (mm)</b>	460
<b>Max power (W)</b>	8000
<b>Weight (kg)</b>	100

## 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

## MODEL NAMES EXPLAINED

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

[www.carbolite-gero.com/tf](http://www.carbolite-gero.com/tf)