

## TF1, TF3 Tube Furnaces

With maximum temperatures ranging from 1100 °C and 1200 °C, the TF tube furnace range incorporates high-quality heating elements and innovative thermal insulation design to achieve first class performance delivering both reduced case temperatures and power consumption.



TF1 11/32/150 with CC-T1 temperature programmer

### Standard features

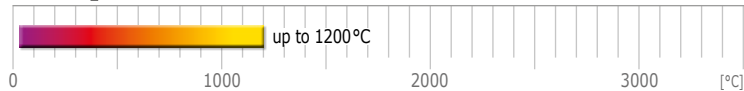
- 1100 °C & 1200 °C maximum operating temperatures
- Programmable temperature controller with 24 segments.
  - TF1 fitted with Carbolite Gero EPC3016P1
  - TF3 fitted with Carbolite Gero CC-T1
- Ethernet Communications
- TF1 (1-zone) Heated length range from 150 to 1200 mm
- TF3 (3-zone) Heated length range from 450 to 1200 mm
- Accepts work tubes with outer diameters from 32 mm up to 125 mm
- Wire elements in high quality vacuum formed insulation ensure fast heat up, excellent temperature uniformity and short cool down times
- Horizontal configuration mounted on control module for heated lengths up to 600 mm
- Furnace body detachable from the control box to allow use of optional mounting arrangements (see pages 6–7)
- Horizontal configuration have a separate control module for heated lengths of 800 mm and above
- Control module with 2 metre cable to furnace with plug and socket

The extensive range features three main case sizes, mini, small, and medium, with multiple heated lengths available. Standard models can be configured to function with a single heated zone (TF1) or three heated zones (TF3) to extend the uniform heated length. Each heated zone of the TF3 benefits from its own dedicated controller and thermocouple.

A slide-in accessory work tube is required to protect the heating elements and support the work piece. The TF range can accommodate work tubes with outside diameters of 32 mm to 125 mm.

The variety of available work tubes and the use of tube adapters allow a single furnace to accommodate a variety of tube diameters. 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; for such applications, an extended work tube is required. Information can be found on pages 42–43.



TF1 12/125/1000 with CC-T1 temperature programmer

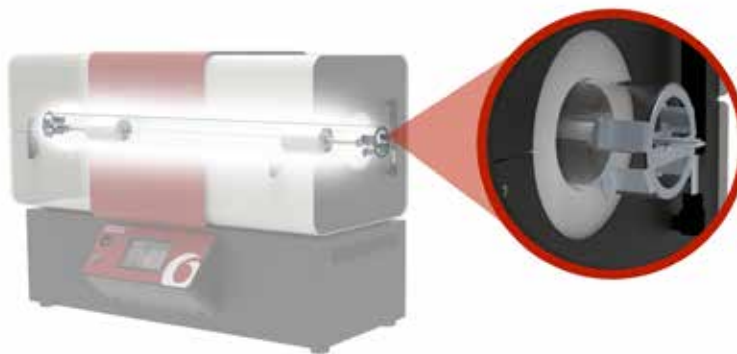
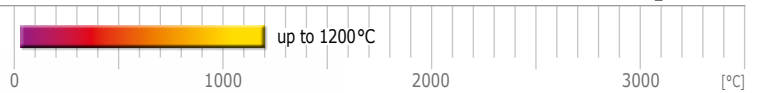
- Low power consumption
- Optimised heating element positions
- Flexible mounting options
- Ethernet fitted as standard
- Temperature programmer as standard

**Options** (specify these at time of order)

- A range of sophisticated digital controllers, multi-segment programmers and data loggers with digital communication options is available (see pages 36–40)
- Over-temperature protection (recommended to protect valuable contents & for unattended operation)
- A range of additional work tubes (page 41), end seals (page 44) and work tube packages (pages 42–43) is available for use with modified atmosphere and/or vacuum
- Vacuum packages with a choice of rotary vane pump or turbomolecular pump are available (page 46)
- Wide choice of tube diameters and materials is available. See page 41 for tube materials
- Insulation plugs and radiation shields to prevent heat loss and improve uniformity
- Vertical mounting stand for the furnace body including bracket for mounting the furnace body to customer's equipment
- 4 m long extension cable to give a total 6 m length of cable between furnace body and control box
- Gas packages with manual valve (page 47)
- Gas packages with electrically operated valve for up to 3 gases (page 47)



TF1 12/60/600 with CC-T1 temperature programmer and optional vertical package



Detail showing the 'work tube package for air' installed in the furnace.

Work tube package for air shown with a TF1 12/60/600



Detail showing the work tube support bracket. Work tube packages with extended length work tubes include guards and support brackets as indicated in this image.

Work tube package for gas atmosphere shown with a TS1 12/60/600

## Technical data – TF1 Mini

Model	Max. temp. [°C]	Heat-up time [mins]	Dimensions: Max. outer Ø accessory tube [mm]	Dimensions: Heated length [mm]	Recommended tube length		Dimensions: Horizontal External H x W x D [mm]	Dimensions: control box H x W x D [mm]	Uniform length ±5°C [mm]	Max. power [W]	Holding power [W]	Thermocouple type	Weight [kg]
					for use in air [mm]	for use with modified atmosphere [mm]							
<b>TF1 11/32/150</b>	1100	27	32	150	300	500	445 x 335 x 470	220 x 335 x 450	58	575	230	K	15

**i** 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
- Maximum continuous operating temperature is 100°C below maximum temperature

## Technical data – TF1, TF3 Small

Model	Max. temp. [°C]	Heat up time [mins]	Dimensions: Max. outer Ø accessory tube [mm]	Dimensions: Heated length [mm]	Recommended tube length		Dimensions: Horizontal External H x W x D [mm]	Dimensions: control box H x W x D [mm]	Uniform length ±5°C [mm]	Max. power [W]	Thermocouple Type	Weight [kg]
					for use in air [mm]	for use with modified atmosphere [mm]						

### Single Zone Tube Furnaces TF1

<b>TF1 12/60/150</b>	1200	40	60	150	430	600	560 x 485 x 480	220 x 485 x 480	93	750	N	31
<b>TF1 12/60/300</b>	1200	35	60	300	580	750	560 x 495 x 480	220 x 485 x 480	177	1500	N	37
<b>TF1 12/60/450</b>	1200	45	60	450	730	900	560 x 645 x 480	220 x 635 x 480	318	2000	N	49
<b>TF1 12/60/600</b>	1200	45	60	600	880	1050	560 x 795 x 480	220 x 785 x 480	474	2500	N	56

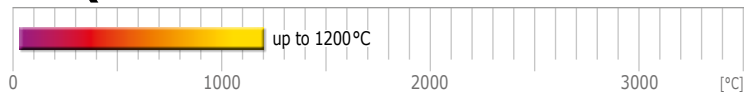
### 3-Zone Tube Furnaces TF3

<b>TF3 12/60/450</b>	1200	55	60	450	730	900	560 x 645 x 480	220 x 635 x 480	340	2000	N	49
<b>TF3 12/60/600</b>	1200	55	60	600	880	1050	560 x 795 x 480	220 x 785 x 480	501	2500	N	56

**i** 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
- Maximum continuous operating temperature is 100°C below maximum temperature



Work tube package for air + vertical stand and vertical tube support package shown with a TF1 12/60/600. Please see page 14 for detail images of the tube support package.



Work tube package for gas atmosphere + vertical stand and vertical tube support package shown with a TF1 12/125/400. Please see page 14 for detail images of the tube support package.

## Technical data – TF1, TF3 Medium

Model	Max. temp. [°C]	Heat-up time [mins]	Dimensions: Max. outer Ø accessory tube [mm]	Dimensions: Heated length [mm]	Recommended tube length		Dimensions: Horizontal External H x W x D [mm]	Dimensions: control box H x W x D [mm]	Uniform length ± 5°C [mm]	Max. power [W]	Holding power [W]	Thermocouple type	Weight [kg]
					for use in air [mm]	for use with modified atmosphere [mm]							

### Single Zone Tube Furnaces TF1

<b>TF1 12/125/400</b>	1200	88	125	400	750	1000	645 x 665 x 575	220 x 655 x 480	284	1860	1240	N	71
<b>TF1 12/125/600</b>	1200	90	125	600	950	1200	645 x 865 x 575	220 x 855 x 480	456	2510	1500	N	89
<b>TF1 12/125/800</b>	1200	85	125	800	1150	1400	430 x 1065 x 575	220 x 655 x 480*	635	3160	1800	N	102
<b>TF1 12/125/1000</b>	1200	80	125	1000	1350	1600	430 x 1265 x 575	220 x 655 x 480*	847	3810	2100	N	120
<b>TF1 12/125/1200</b>	1200	82	125	1200	1550	1800	430 x 1465 x 575	220 x 655 x 480*	969	4460	2400	N	134

### 3-Zone Tube Furnaces TF3

<b>TF3 12/125/600</b>	1200	90	125	600	950	1200	645 x 865 x 575	220 x 855 x 480	507	2510	1500	N	89
<b>TF3 12/125/800</b>	1200	85	125	800	1150	1400	430 x 1065 x 575	220 x 655 x 480*	715	3160	1800	N	102
<b>TF3 12/125/1000</b>	1200	80	125	1000	1350	1600	430 x 1265 x 575	220 x 655 x 480*	855	3810	2100	N	120
<b>TF3 12/125/1200</b>	1200	82	125	1200	1550	1800	430 x 1465 x 575	220 x 655 x 480*	1055	4460	2400	N	134

**i** 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
- Maximum continuous operating temperature is 100°C below maximum temperature
- \* Furnace with separate control box





# WolfLabs

**Pricing on any accessories shown can be found by keying the part number into the search box on our website.**

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

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