

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

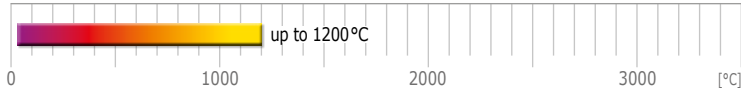
- 1100 °C & 1200 °C maximum operating temperatures
- Programmable temperature controller with 24 segments.
 - TF1 fitted with Carbolite Gero EPC3016P1
 - TF3 fitted with Carbolite Gero CC-T1
- Ethernet Communications
- TF1 (1-zone) Heated length range from 150 to 1200 mm
- TF3 (3-zone) Heated length 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

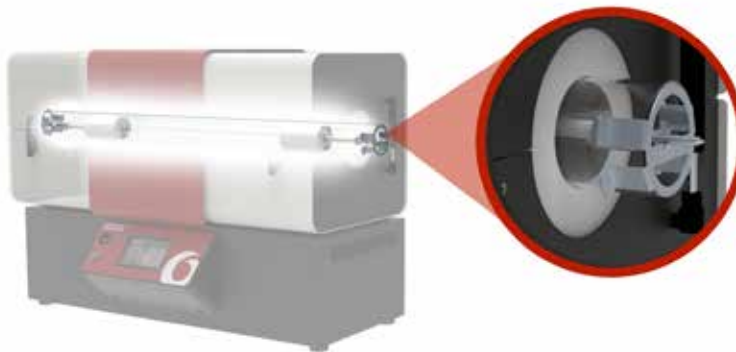
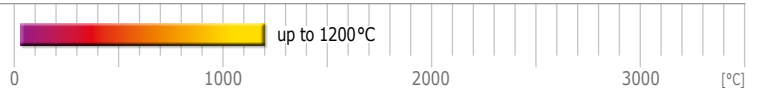
- Low power consumption
- Optimised heating element positions
- Flexible mounting options
- Ethernet fitted as standard
- Temperature programmer as standard

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] | | | | | | | |
| TF1 11/32/150 | 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

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

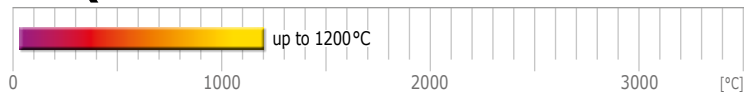
3-Zone Tube Furnaces TF3

| | | | | | | | | | | | | |
|----------------------|------|----|----|-----|-----|------|-----------------|-----------------|-----|------|---|----|
| TF3 12/60/450 | 1200 | 55 | 60 | 450 | 730 | 900 | 560 x 645 x 480 | 220 x 635 x 480 | 340 | 2000 | N | 49 |
| TF3 12/60/600 | 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

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

| | | | | | | | | | | | | | |
|------------------------|------|----|-----|------|------|------|------------------|------------------|------|------|------|---|-----|
| TF3 12/125/600 | 1200 | 90 | 125 | 600 | 950 | 1200 | 645 x 865 x 575 | 220 x 855 x 480 | 507 | 2510 | 1500 | N | 89 |
| TF3 12/125/800 | 1200 | 85 | 125 | 800 | 1150 | 1400 | 430 x 1065 x 575 | 220 x 655 x 480* | 715 | 3160 | 1800 | N | 102 |
| TF3 12/125/1000 | 1200 | 80 | 125 | 1000 | 1350 | 1600 | 430 x 1265 x 575 | 220 x 655 x 480* | 855 | 3810 | 2100 | N | 120 |
| TF3 12/125/1200 | 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



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Use the above details to contact us if this literature doesn't answer all your questions.

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.

