

Modular Vertical Tube Furnace - GVA / GVC

General Information

The tube furnace range GVA (single zone) / GVC (three zone) uses free radiating wire elements embedded within the insulation of the furnace body. The benefit of this design is its flexibility with the use of tube adapters the same furnace can be used with a variety of tube diameters.

The extended uniform zone in the mid-section of the work tube in the GVC 3-zone furnace is achieved with the use of end zone controllers which track the centre zone temperature and compensate for the loss of heat from the tube ends.

This tube furnace range does not include an integral work tube and one must be selected as an additional item. The work tube length is dependent on the application, for example, for use with modified atmosphere or vacuum. The use of a separate work tube has the advantage of protecting the heating elements from damage or contamination.



Standard features

- 1200°C maximum operating temperature
- Carbolite Gero 301 controller, with single ramp to set-point & process timer
- Accepts work tubes with outer diameter up to 170 mm
- Heated lengths, single zone 300, 450, 600, 750, 900, 1050 or 1200 mm (GVA)
- Heated lengths, 3-zone 450, 600, 750, 900, 1050 or 1200 mm (GVC)
- Long life, rapid heating, resistance wire elements mounted in rigid, vacuum formed insulation modules
- End zones 150 mm long on each end (GVC)
- End zone control via back to back thermocouples (GVC)
- Supplied with versatile stand for vertical, wall mounted and horizontal use
- Control module with 2 metre conduit to furnace

Options (specify these at time of order)

- A range of sophisticated digital controllers, multi-segment programmers and data loggers is available. These can be fitted with RS232, RS485 or Ethernet communications
- Over-temperature protection (recommended to protect valuable contents & for unattended operation)
- A range of additional work tubes, end seals and work tube packages is available for use with modified atmosphere and/or vacuum
- Vacuum packages with a choice of rotary vane pump or turbomolecular pump are available for furnaces with tube inner diameters of 60 mm and above
- Wide choice of tube diameters and materials is available: eg quartz, ceramic, metal
- Available without stand (comprising control module & furnace body)
- Insulation plugs & radiation shields to prevent heat loss & improve uniformity
- End zones 300 mm long (GVC)

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- Modified atmosphere and vacuum assemblies are available
- Control module on longer 6 metre conduit (GVC)
- Retransmission of Setpoint control configuration to facilitate programmed cooling

Technical Specifications

GVA 12/300

Max temp (°C)	1200
Number of heated zones	Single zone
Dimensions: Heated tube length (mm)	300
Heat-up time (mins)	90
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	480
Recommended tube length for use in air (mm)	500
Recommended tube length for use with modified atmosphere (mm)	900
Dimensions: External Furnace body (inc stand) H x W x D (mm)	1345 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Dimensions: Clearance under furnace (mm)	251 to 778
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	--
Max power (W)	2300
Thermocouple type	N
Weight (kg)	73

GVA 12/450

Max temp (°C)	1200
Number of heated zones	Single zone
Dimensions: Heated tube length (mm)	450
Heat-up time (mins)	75
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	630
Recommended tube length for use in air (mm)	650

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Recommended tube length for use with modified atmosphere (mm)	1050
Dimensions: External Furnace body (inc stand) H x W x D (mm)	1418 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Dimensions: Clearance under furnace (mm)	177 to 702
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	--
Max power (W)	3100
Thermocouple type	N
Weight (kg)	87

GVA 12/600

Max temp ($^{\circ}\text{C}$)	1200
Number of heated zones	Single zone
Dimensions: Heated tube length (mm)	600
Heat-up time (mins)	70
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	780
Recommended tube length for use in air (mm)	800
Recommended tube length for use with modified atmosphere (mm)	1200
Dimensions: External Furnace body (inc stand) H x W x D (mm)	1418 x 648 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Dimensions: Clearance under furnace (mm)	177 to 550
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	--
Max power (W)	3900
Thermocouple type	N
Weight (kg)	95

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GVA 12/750

Max temp (°C)	1200
Number of heated zones	Single zone
Dimensions: Heated tube length (mm)	750
Heat-up time (mins)	80
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	930
Recommended tube length for use in air (mm)	950
Recommended tube length for use with modified atmosphere (mm)	1350
Dimensions: External Furnace body (inc stand) H x W x D (mm)	1793 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Dimensions: Clearance under furnace (mm)	177 to 777
Uniform length ±5°C (mm)	--
Max power (W)	4600
Thermocouple type	N
Weight (kg)	100

GVA 12/900

Max temp (°C)	1200
Number of heated zones	Single zone
Dimensions: Heated tube length (mm)	900
Heat-up time (mins)	--
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	1080
Recommended tube length for use in air (mm)	1100
Recommended tube length for use with modified atmosphere (mm)	1500
Dimensions: External Furnace body (inc stand) H x W x D (mm)	1860 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Dimensions: Clearance under	100 to 702

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furnace (mm)	
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	--
Max power (W)	5400
Thermocouple type	N
Weight (kg)	110

GVA 12/1050

Max temp ($^{\circ}\text{C}$)	1200
Number of heated zones	Single zone
Dimensions: Heated tube length (mm)	1050
Heat-up time (mins)	67
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	1230
Recommended tube length for use in air (mm)	1250
Recommended tube length for use with modified atmosphere (mm)	1650
Dimensions: External Furnace body (inc stand) H x W x D (mm)	1943 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Dimensions: Clearance under furnace (mm)	26 to 627
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	--
Max power (W)	6200
Thermocouple type	N
Weight (kg)	120

GVA 12/1200

Max temp ($^{\circ}\text{C}$)	1200
Number of heated zones	Single zone
Dimensions: Heated tube length (mm)	1200
Heat-up time (mins)	83
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	1380
Recommended tube length for use in air (mm)	1400
Recommended tube length for use	1800

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with modified atmosphere (mm)

Dimensions: External Furnace body (inc stand) H x W x D (mm)	2018 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Dimensions: Clearance under furnace (mm)	26 to 551
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	845
Max power (W)	7000
Thermocouple type	N
Weight (kg)	130

GVC 12/450

Max temp ($^{\circ}\text{C}$)	1200
Number of heated zones	Three zone
Dimensions: Heated tube length (mm)	450
Heat-up time (mins)	75
Max continuous operating temp ($^{\circ}\text{C}$)	1100
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	630
Recommended tube length for use in air (mm)	650
Recommended tube length for use with modified atmosphere (mm)	1050
Dimensions: External Furnace H x W x D (mm)	1418 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Clearance under furnace H (mm)	177 to 702
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	300
Max power (W)	3100
Holding power (W)	1500
Thermocouple type	N
Weight (kg)	87

Modular Vertical Tube Furnace - GVA / GVC

GVC 12/600

Max temp (°C)	1200
Number of heated zones	Three zone
Dimensions: Heated tube length (mm)	600
Heat-up time (mins)	80
Max continuous operating temp (°C)	1100
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	780
Recommended tube length for use in air (mm)	800
Recommended tube length for use with modified atmosphere (mm)	1200
Dimensions: External Furnace H x W x D (mm)	1418 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Clearance under furnace H (mm)	177 to 550
Uniform length ±5°C (mm)	440
Max power (W)	3900
Holding power (W)	1800
Thermocouple type	N
Weight (kg)	95

GVC 12/750

Max temp (°C)	1200
Number of heated zones	Three zone
Dimensions: Heated tube length (mm)	750
Heat-up time (mins)	92
Max continuous operating temp (°C)	1100
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	930
Recommended tube length for use in air (mm)	950
Recommended tube length for use with modified atmosphere (mm)	1350
Dimensions: External Furnace H x W x D (mm)	1793 x 468 x 662

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Dimensions: Control module H x W x 225 x 600 x 380

D (mm)

Clearance under furnace H (mm)	177 to 777
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	500
Max power (W)	4600
Holding power (W)	2200
Thermocouple type	N
Weight (kg)	100

GVC 12/900

Max temp ($^{\circ}\text{C}$)	1200
Number of heated zones	Three zone
Dimensions: Heated tube length (mm)	900
Heat-up time (mins)	111
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	1080
Recommended tube length for use in air (mm)	1100
Recommended tube length for use with modified atmosphere (mm)	1500
Dimensions: External Furnace H x W x D (mm)	1860 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Clearance under furnace H (mm)	100 to 702
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	640
Max power (W)	5400
Holding power (W)	2281
Thermocouple type	N
Weight (kg)	110

GVC 12/1050

Max temp ($^{\circ}\text{C}$)	1200
Number of heated zones	Three zone
Dimensions: Heated tube length (mm)	1050
Heat-up time (mins)	122
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	1230

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Recommended tube length for use in air (mm)	1250
Recommended tube length for use with modified atmosphere (mm)	1650
Dimensions: External Furnace H x W x D (mm)	1943 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Clearance under furnace H (mm)	26 to 627
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	880
Max power (W)	6200
Holding power (W)	2800
Thermocouple type	N
Weight (kg)	68

GVC 12/1200

Max temp ($^{\circ}\text{C}$)	1200
Number of heated zones	Three zone
Dimensions: Heated tube length (mm)	1200
Heat-up time (mins)	82
Dimensions: Max outer diameter accessory tube (mm)	170
Dimensions: Furnace body length (mm)	1380
Recommended tube length for use in air (mm)	1500
Recommended tube length for use with modified atmosphere (mm)	1400
Dimensions: External Furnace H x W x D (mm)	2018 x 468 x 662
Dimensions: Control module H x W x D (mm)	225 x 600 x 380
Clearance under furnace H (mm)	26 to 551
Uniform length $\pm 5^{\circ}\text{C}$ (mm)	1015
Max power (W)	7000
Holding power (W)	3163
Thermocouple type	N
Weight (kg)	130

Please note:

- Heat up rate when using a ceramic work tube must be limited to $5^{\circ}\text{C}/\text{min}$
- Heat up rate is measured to 100°C below max, using an empty tube & insulation plugs
- Dimensions excluding control box (225 x 600 x 380 mm)
- Maximum continuous operating temperature is 100°C below maximum temperature
- Holding power is measured at continuous operating temperature
- Uniform length measured with insulation plugs fitted