

GHA, GHC – Modular Horizontal Tube Furnaces

The GVA and GHA single zone and GVC and GHC 3-zone tube furnaces use 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 and GHC 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 range of tube furnaces 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. This information can be found on pages 112–113. The use of a separate work tube has the advantage of protecting the heating elements from damage or contamination.



GHA 12/300

Standard features

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

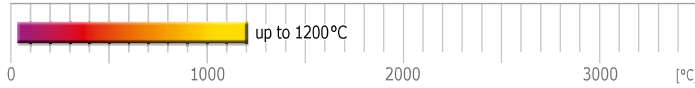
Technical data

CGH	Model	Max. temp. [°C]	Heat-up time [mins]	Max. continuous operating temp. [°C]	Dimensions: Max. outer Ø accessory tube [mm]	Dimensions: Heated length [mm]	Recommended tube length		Dimensions: External H x W x D [mm]	Dimensions: Furnace body length [mm]	Uniform length ± 5 °C [mm]	Max. power [W]	Holding power [W]	Thermo-couple type	Weight [kg]
							for use in air [mm]	for use with modified atmosphere [mm]							
Single Zone Modular Horizontal Tube Furnaces GHA															
GHA 12/300	1200	90	1100	170	300	500	900	670 x 526 x 468	480	201	2300	1125	N	35	
GHA 12/450	1200	75	1100	170	450	650	1050	670 x 676 x 468	630	262	3100	1555	N	37	
GHA 12/600	1200	70	1100	170	600	800	1200	670 x 826 x 468	780	414	3900	1840	N	40	
GHA 12/750	1200	80	1100	170	750	950	1350	670 x 976 x 468	930	448	4600	2165	N	51	
GHA 12/900	1200	–	1100	170	900	1100	1500	670 x 1126 x 468	1080	–	5400	2800	N	55	
GHA 12/1050	1200	67	1100	170	1050	1250	1650	670 x 1276 x 468	1230	696	6200	2960	N	85	
GHA 12/1200	1200	83	1100	170	1200	1400	1800	670 x 1426 x 468	1380	–	7000	3310	N	90	
3-Zone Modular Horizontal Tube Furnaces GHC															
GHC 12/450	1200	75	1100	170	450	650	1050	672 x 676 x 468	630	300	3100	1551	N	37	
GHC 12/600	1200	53	1100	170	600	800	1200	672 x 827 x 468	780	440	3900	1889	N	40	
GHC 12/750	1200	62	1100	170	750	950	1350	672 x 976 x 468	930	500	4600	2200	N	51	
GHC 12/900	1200	90	1100	170	900	1100	1500	672 x 1126 x 468	1080	640	5400	2800	N	55	
GHC 12/1050	1200	67	1100	170	1050	1250	1650	672 x 1276 x 468	1230	880	6200	2850	N	85	
GHC 12/1200	1200	61	1100	170	1200	1400	1800	672 x 1426 x 468	1380	–	7000	3163	N	90	

i Please note:

- Heat up rate when using an optional ceramic work tube must be limited to 5°C/min
- Heat up time is measured to 100 °C below max, using an empty tube & insulation plugs
- Uniform length measured with insulation plugs fitted

- Holding power is measured at continuous operating temperature



GVA, GVC – Modular Vertical Tube 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 (see pages 106 – 111)
- Over-temperature protection (recommended to protect valuable contents & for unattended operation)
- A range of additional work tubes (pages 112 – 113), end seals (page 116) and work tube packages (pages 114 – 115) 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 118)
- Wide choice of tube diameters and materials is available. See pages 112 – 113 for tube materials and dimensions
- Available without stand (comprising control module & furnace body)
- Insulation plugs & radiation shields to prevent heat loss & improve uniformity
- End zones 300 mm long (GVC, GHC)
- Control module on longer 6 metre conduit (GVC)
- ‘Retransmission of Setpoint’ control configuration to facilitate programmed cooling
- Alternative mounting options are available (see page 57) (GHA, GHC)



GVA 12/600

Technical data

CGH	Model	Max. temp. [°C]	Heat-up time [mins]	Dimensions: Max. outer Ø accessory tube [mm]	Dimensions: Heated length [mm]	Recommended tube length		Dimensions: External Furnace body (inc. stand) H x W x D [mm]	Dimensions: Clearance under furnace H [mm]	Dimensions: Furnace body length [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 Modular Vertical Tube Furnaces GVA

GVA 12/300	1200	90	170	300	500	900	1345 x 468 x 662	251 to 778	480	–	2300	1125	N	73
GVA 12/450	1200	75	170	450	650	1050	1418 x 468 x 662	177 to 702	630	–	3100	1555	N	87
GVA 12/600	1200	70	170	600	800	1200	1418 x 648 x 662	177 to 550	780	–	3900	1840	N	95
GVA 12/750	1200	80	170	750	950	1350	1793 x 468 x 662	177 to 777	930	–	4600	2165	N	100
GVA 12/900	1200	–	170	900	1100	1500	1860 x 468 x 662	100 to 702	1080	–	5400	2800	N	110
GVA 12/1050	1200	67	170	1050	1250	1650	1943 x 468 x 662	26 to 627	1230	–	6200	2960	N	120
GVA 12/1200	1200	83	170	1200	1400	1800	2018 x 468 x 662	26 to 551	1380	845	7000	3310	N	130

3-Zone Modular Vertical Tube Furnaces GVC

GVC 12/450	1200	75	170	450	650	1050	1418 x 468 x 662	177 to 702	630	300	3100	1500	N	87
GVC 12/600	1200	80	170	600	800	1200	1418 x 468 x 662	177 to 550	780	440	3900	1800	N	95
GVC 12/750	1200	92	170	750	950	1350	1793 x 468 x 662	177 to 777	930	500	4600	2200	N	100
GVC 12/900	1200	111	170	900	1100	1500	1860 x 468 x 662	100 to 702	1080	640	5400	2281	N	110
GVC 12/1050	1200	122	170	1050	1250	1650	1943 x 468 x 662	26 to 627	1230	880	6200	2800	N	120
GVC 12/1200	1200	82	170	1200	1400	1800	2018 x 468 x 662	26 to 551	1380	1015	7000	3163	N	130

i Please note:

- Heat up rate when using a ceramic work tube must be limited to 5 °C/min
- Heat up time 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