

CHAMBER FURNACE, METAL INSULATION - HTK



The HTK range of Carbolite Gero high temperature furnaces consists of metallic furnaces made of Molybdenum and Tungsten.

The rectangular design with a front door allows for easy loading and unloading. The HTK range is available in three different sizes. The smallest designs with a capacity of 8 litres and 25 litres are typically employed by laboratories for research and development. The 80 litre furnaces are predominantly used as pilot manufacturing systems or large scale production.

The metallic furnaces constructed of tungsten (HTK W) or molybdenum (HTK MO) permit the greatest possible purity of inert atmosphere and final vacuum level in the high vacuum region (5×10^{-6} mbar). Upon request, an ultra-high vacuum can be configured. Common gases that are typically used include: Nitrogen, Argon, Hydrogen or mixtures.

The heating elements are made from the same metallic material as the insulation. The heating insulation is constructed of several radiation shields constructed from tungsten or molybdenum with respect to the furnace type selected. A retort can be utilized for gas flow guidance or to improve the temperature uniformity. The maximum temperature for the HTK W is 2200 °C and 1600 °C in the HTK MO.



[Click to view video](#)

Product Video: Chamber furnace, metal insulation - HTK

STANDARD FEATURES

- | Metallic furnaces provide a precisely defined atmosphere with the highest possible purity (6 N or better)
- | Metallic furnaces offer the best possible vacuum
- | Hydrogen partial pressure operation if requested
- | Precisely controlled vacuum pumping speeds appropriate for powders
- | Data recording for quality management

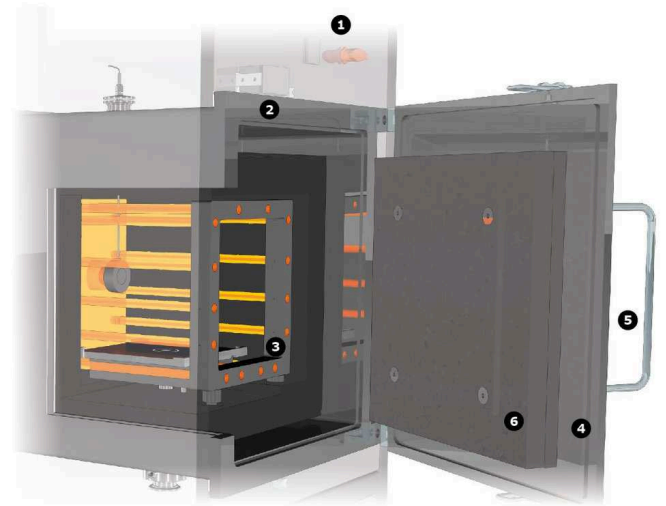
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TECHNICAL DETAILS

View inside of the HTK

1. frame
2. water cooled vessel
3. heating cassette
4. groove for the sealing
5. front door
6. insulation

Inside the chamber, heating elements are positioned at the bottom, left, right, and top sides of the furnace chamber allowing for improved temperature uniformity. For larger volumes, the back wall and front are equipped with heating elements to maintain excellent temperature uniformity. The HTK W, HTK MO, HTK GR and HTK KE furnaces are surrounded by a water cooled vessel; thus classifying, the HTK systems as a cold wall furnace. The cooling water is guided through the double walled vessel.



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EXAMPLES



HTK 8 W/22-1G semi-automatic up to 2200°C



HTK 8 MO/16-1G automatic up to 1600°C with optional hydrogen equipment



HTK 25 W/22-1G automatic up to 2200°C



HTK 80 MO/16-1G automatic with optional hydrogen equipment

TECHNICAL DETAILS (MODELS)

	HTK 8 MO/16-1G	HTK 25 MO/16-1G	HTK 80 MO/16-1G
Insulation material	Molybdenum	Molybdenum	Molybdenum
Dimensions:			
External H x W x D (mm)	2100 x 1300 x 1100	2200 x 1900 x 1800	2300 x 2100 x 2200
Transport weight (kg)	1200	1700	2000
Usable space	//	//	//
Volume (litres)	8	25	80
H x W x D usable space without retort (mm)	200 x 200 x 200	250 x 250 x 400	400 x 400 x 500
H x W x D usable space with retort (mm)	200 x 180 x 180	230 x 230 x 400	380 x 380 x 500
Thermal values	//	//	//
Tmax vacuum (°C)	1600	1600	1600
Tmax atmosphere pressure (°C)	1600	1600	1600
-Delta-T between 500 and 1500°C (K) according to DIN 17052	± 5	± 5	± 5
Max. heat-up rate (K/min)	10	10	10
Cooling time (h)	6	6	8
Connecting values	//	//	//
Power (kW)	30	80	100
Voltage (V)	400	400 (3P)	400 (3P)
Current (A)	75	3x 120	3x 150
Series fuse (A)	3x 100	3x 160	3x 200
Vacuum (option)	//	//	//
Leakage rate - clean, cold and empty (mbar l/s)	5x10 ⁻³	5x10 ⁻³	5x10 ⁻³
Vacuum range depending on the pumping unit	rough, fine or high vacuum	rough, fine or high vacuum	rough, fine or high vacuum

	HTK 8 MO/16-1G	HTK 25 MO/16-1G	HTK 80 MO/16-1G
Cooling water required	//	//	//
Volume (l/min)	40	70	100
Max entry temperature (°C)	23	23	23
Gas supply	//	//	//
Nitrogen or Argon, others on request (l/h)	200-2000	200-2000	200-2000
Controller	on request	on request	on request

	HTK 8 W/22-1G	HTK 25 W/22-1G
Insulation material	Tungsten	Tungsten
Dimensions:		
External H x W x D (mm)	2100 x 1300 x 1100	2200 x 1900 x 1800
Transport weight (kg)	1300	1900
Usable space	//	//
Volume (litres)	8	25
H x W x D usable space without retort (mm)	200 x 200 x 200	250 x 250 x 400
H x W x D usable space with retort (mm)	180 x 180 x 200	230 x 230 x 400
Thermal values	//	//
Tmax vacuum (°C)	2200	2200
Tmax atmosphere pressure (°C)	2200	2200
-Delta-T between 500 and 1500°C (K) according to DIN 17052	± 5	± 5
Max. heat-up rate (K/min)	10	10
Cooling time (h)	6	6
Connecting values	//	//
Power (kW)	45	100
Voltage (V)	400	400 (3P)
Current (A)	112	3x 150
Series fuse (A)	3x 160	3x 200
Vacuum (option)	//	//
Leakage rate - clean, cold and empty (mbar l/s)	-	-
Vacuum range depending on the pumping unit	rough, fine or high vacuum	rough, fine or high vacuum
Cooling water required	//	//
Volume (l/min)	40	100
Max entry temperature (°C)	23	23
Gas supply	//	//
Nitrogen or Argon, others on request (l/h)	200-2000	200-2000
Controller	on request	on request

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