

Chamber furnace, metal insulation - HTK

General Information

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.



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

Technical Specifications

HTK 8 MO/16-1G	
Insulation material	Molybdenum
Volume (litres)	8
Tmax vacuum (°C)	1600
Dimensions: External H x W x D (mm)	2100 x 1300 x 1100
Transport weight (kg)	1200
Usable space	
H x W x D usable space without retort (mm)	200 x 200 x 200
H x W x D usable space with retort (mm)	200 x 180 x 180
Thermal values	

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Tmax atmosphere pressure (°C)	1600
-Delta-T between 500 and 1500°C (K) according to DIN 17052	± 5
Max. heat-up rate (K/min)	10
Cooling time (h)	6
Connecting values	
Power (kW)	30
Voltage (V)	400
Current (A)	75
Series fuse (A)	3x 100
Vacuum (option)	
Leakage rate - clean, cold and empty (mbar l/s)	5x10-3
Vacuum range depending on the pumping unit	rough, fine or high vacuum
Cooling water required	
Volume (l/min)	40
Max entry temperature (°C)	23
Gas supply	
Nitrogen or Argon, others on request (l/h)	200-2000
Controller	on request

HTK 25 MO/16-1G

Insulation material	Molybdenum
Volume (litres)	25
Tmax vacuum (°C)	1600
Dimensions: External H x W x D (mm)	2200 x 1900 x 1800
Transport weight (kg)	1700
Usable space	
H x W x D usable space without retort (mm)	250 x 250 x 400
H x W x D usable space with retort (mm)	230 x 230 x 400
Thermal values	
Tmax atmosphere pressure (°C)	1600
-Delta-T between 500 and 1500°C (K) according to DIN 17052	± 5
Max. heat-up rate (K/min)	10
Cooling time (h)	6
Connecting values	
Power (kW)	80

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Voltage (V)	400 (3P)
Current (A)	3x 120
Series fuse (A)	3x 160
Vacuum (option)	
Leakage rate - clean, cold and empty (mbar l/s)	5x10 ⁻³
Vacuum range depending on the pumping unit	rough, fine or high vacuum
Cooling water required	
Volume (l/min)	70
Max entry temperature (°C)	23
Gas supply	
Nitrogen or Argon, others on request (l/h)	200-2000
Controller	on request

HTK 80 MO/16-1G

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

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Cooling water required

Volume (l/min)	100
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Max entry temperature (°C)	23
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Gas supply

Nitrogen or Argon, others on request (l/h)	200-2000
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Controller	on request
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HTK 8 W/22-1G

Insulation material	Tungsten
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Volume (litres)	8
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Tmax vacuum (°C)	2200
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Dimensions:	2100 x 1300 x 1100
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External H x W x D (mm)	
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Transport weight (kg)	1300
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Usable space

H x W x D usable space without retort (mm)	200 x 200 x 200
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H x W x D usable space with retort (mm)	180 x 180 x 200
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Thermal values

Tmax atmosphere pressure (°C)	2200
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-Delta-T between 500 and 1500°C (K) according to DIN 17052	± 5
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Max. heat-up rate (K/min)	10
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Cooling time (h)	6
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Connecting values

Power (kW)	45
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Voltage (V)	400
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Current (A)	112
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Series fuse (A)	3x 160
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Vacuum (option)

Leakage rate - clean, cold and empty (mbar l/s)	
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Vacuum range depending on the pumping unit	rough, fine or high vacuum
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Cooling water required

Volume (l/min)	40
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Max entry temperature (°C)	23
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Gas supply

Nitrogen or Argon, others on request (l/h)	200-2000
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Controller	on request
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HTK 25 W/22-1G

Insulation material	Tungsten
Volume (litres)	25
Tmax vacuum (°C)	2200
Dimensions: External H x W x D (mm)	2200 x 1900 x 1800
Transport weight (kg)	1900
Usable space	
H x W x D usable space without retort (mm)	250 x 250 x 400
H x W x D usable space with retort (mm)	230 x 230 x 400
Thermal values	
Tmax atmosphere pressure (°C)	2200
-Delta-T between 500 and 1500°C (K) according to DIN 17052	± 5
Max. heat-up rate (K/min)	10
Cooling time (h)	6
Connecting values	
Power (kW)	100
Voltage (V)	400 (3P)
Current (A)	3x 150
Series fuse (A)	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
Cooling water required	
Volume (l/min)	100
Max entry temperature (°C)	23
Gas supply	
Nitrogen or Argon, others on request (l/h)	200-2000
Controller	on request