Muffle Furnaces up to 1400 °C

Muffle furnaces are the reliable and long-lasting all-rounders in the laboratory and are ideally suited for a large number of processes in the field of material research and heat treatment. Moreover, Nabertherm offers specially designed ashing furnaces for the wide range of analyzes of ash residues.

The following equipment applies to all furnaces in this chapter:

- Dual shell ventilated housing made of textured stainless steel sheets for low surface temperature and high stability
- Solid state relays provide for lownoise operation
- Exclusive use of insulation materials without categorization according to EC Regulation No 1272/2008 (CLP). This explicitly means that alumino silicate wool, also known as “refractory ceramic fiber” (RCF), which is classified and possibly carcinogenic, is not used.
- Defined application within the constraints of the operating instructions
- Controller with intuitive touch operation
- NTLog Basic for Nabertherm controller: recording of process data with USB-flash drive
- Freeware NTEdit for convenient program input via Excel™ for Windows™ on the PC
- Freeware NTGraph for evaluation and documention of firings using Excel™ for Windows™ on the PC
- MyNabertherm App for online monitoring of the firing on mobile devices for free download
- As additional equipment: Process control and documentation via VCD software package for monitoring, documentation and control

Muffle Furnaces up to 1100 °C or 1200 °C

The muffle furnaces L 3/11 - LT 60/12 have been proven for daily laboratory use. These models stand out for their excellent workmanship, advanced and attractive design, and high level of reliability. The muffle furnaces come equipped with either a flap door or lift door at no extra charge.

Muffle furnace LT 5/12 with lift door

Standard Equipment

- Tmax 1100 °C or 1200 °C
- Heating from two sides by ceramic heating plates (heating from three sides for muffle furnaces L 24/11 - LT 60/12) for an optimal temperature uniformity
- Thermocouple type N (1100 °C) or type S (1200 °C)
- Ceramic heating plates with integral heating element which is safeguarded and easy to replace
- Optional flap door (L) which can be used as work platform or lift door (LT) with hot surface facing away from the operator
- Adjustable air inlet integrated in door (see illustration)
- Exhaust air outlet in rear wall of furnace
- Controller with touch operation B510 (5 programs with each 4 segments) resp. controller R7 for L 1/12 (adjustable for one temperature), alternative controllers see page 84

Muffle furnace L 3/11 with flap door

Additional Equipment

- Chimney, chimney with fan or catalytic converter (not for L 1 and L 15) see page 16
- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Protective gas connection to purge with non-flammable process gases (not available in combination with chimney, chimney with fan or catalytic converter) not gas tight
- Manual or automatic gas supply system
- Port for thermocouple in the rear wall or in the furnace door
- Charging rack with closed or perforated trays for loading the furnace in two levels incl. holder for inserting/removing the trays up to a max. temperature of 800 °C and a max. loading weight per layer of 2 kg for the L(T) 9/11 respectively 3 kg for the L(T) 15/11 see page 13
- Please see page 17 for more accessories

Muffle furnace L 3/12

Muffle furnace L 3/11 with flap door

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Temperature uniformity of +/− 5K in the empty workspace[5]			Max. connected load	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H[3]	w	d	h	in kW	connection*	in kg	in min[4]
L(T) 3/11	1100	160	140	100	3	385	330	405+155	110	50	50	1.3	1-phase	21	41
L(T) 5/11	1100	205	170	130	5	385	390	460+205	170	80	80	2.6	1-phase	27	47
L(T) 9/11	1100	235	240	170	9	415	455	515+240	180	150	120	3.3	1-phase	35	63
L(T) 15/11	1100	230	340	170	15	415	555	515+240	180	250	120	3.5	1-phase	43	74
L(T) 24/11	1100	280	340	250	24	490	555	580+320	230	250	200	4.9	3-phase	52	69
L(T) 40/11	1100	320	490	250	40	530	705	580+320	270	400	200	6.5	3-phase	70	80
LT 60/11	1100	380	490	330	60	610	705	660+385	290	360	240	9.8	3-phase	83	150
L 1/12	1200	90	115	110	1	290	280	410	40	45	60	1.6	1-phase	15	25
L(T) 3/12	1200	160	140	100	3	385	330	405+155	110	50	50	1.3	1-phase	21	48
L(T) 5/12	1200	205	170	130	5	385	390	460+205	170	80	80	2.6	1-phase	27	59
L(T) 9/12	1200	235	240	170	9	415	455	515+240	180	150	120	3.3	1-phase	35	78
L(T) 15/12	1200	230	340	170	15	415	555	515+240	180	250	120	3.5	1-phase	43	99
L(T) 24/12	1200	280	340	250	24	490	555	580+320	230	250	200	4.9	3-phase	52	82
L(T) 40/12	1200	320	490	250	40	530	705	580+320	270	400	200	6.5	3-phase	70	97
LT 60/12	1200	380	490	330	60	610	705	660+385	290	360	240	9.8	3-phase	83	160

[1]Recommended working temperature for processes with longer dwell times is 1000 °C (L../11) rsp. 1100 °C (L../12)
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including opened lift door (LT models)
[4]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)
[5]Temperature uniformity of +/− 5 K with closed fresh-air inlet in empty work space according to DIN 17052-1 at working temperatures above 800 °C see page 77

*Please see page 84 for more information about supply voltage

Chimney with fan

Adjustable air inlet integrated in the door

Gas supply system for non-flammable process gas

Economy Muffle Furnaces up to 1100 °C

With their convincing price/performance ratio and the fast heat-up rates, these compact muffle furnaces are perfect for many applications in the laboratory. Quality features like the dual shell furnace housing of rust-free stainless steel, their compact, lightweight constructions, or the heating elements encased in quartz glass tubes make these models reliable partners for your application.

Muffle furnace LE 6/11

Standard Equipment

- Tmax 1100 °C
- Heating from two sides from heating elements protected in quartz glass tubes
- Fast heating times (see table)
- Maintenance-friendly replacement of heating elements and insulation
- Housing coated in RAL 9003
- Flap door which can also be used as a work platform
- Exhaust air outlet in rear wall
- Compact dimensions and light weight
- Controller mounted under the door to save space
- Controller R7 (adjustable for one temperature), controls description see page 84

Additional Equipment

- Chimney, chimney with fan or catalytic converter (not for LE 1 and LE 2) see page 16
- Please see page 17 for more accessories

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Temperature uniformity of +/– 5K in the empty work-space[4]			Max. connected load	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H	w	d	h	in kW	connection*	in kg	in min[3]
LE 1/11	1100	90	115	110	1	290	280	410	40	65	60	1.6	1-phase	15	10
LE 2/11	1100	110	180	110	2	330	390	410	60	130	60	1.9	1-phase	20	15
LE 6/11	1100	170	200	170	6	390	440	470	120	150	120	2.0	1-phase	27	30
LE 14/11	1100	220	300	220	14	440	540	520	170	250	170	3.2	1-phase	35	35
LE 24/11	1100	260	330	280	24	490	570	590	200	270	230	3.5	1-phase	42	40

[1]Recommended working temperature for processes with longer dwell times is 1050 °C
*Please see page 84 for more information about supply voltage
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Heating time of the empty and closed furnace up to Tmax –100 K (connected to 230 V 1/N/PE)
[4]Temperature uniformity of +/– 5 K with closed fresh-air inlet in empty work space according to DIN 17052-1 at working temperatures above 800 °C see page 77

Muffle furnace LE 1/11

Muffle furnace LE 14/11

Heating elements protected in quartz glass tubes

Muffle Furnaces with Brick Insulation up to 1300 °C

Heating elements on support tubes radiating freely into the furnace chamber provide for particularly short heating times for these muffle furnaces. Thanks to their robust lightweight refractory brick insulation, they can reach a maximum working temperature of 1300 °C. These muffle furnaces thus represent an interesting alternative to the familiar L(T) ../12 models, when you need a higher application temperature.

Muffle furnace L 9/13 with flap door

Standard Equipment

- Tmax 1300 °C
- Heating from two sides
- Heating elements on support tubes ensure free heat radiation and a long service life
- Multi-layer insulation with robust lightweight refractory bricks in the furnace chamber
- Optional flap door (L) which can be used as work platform or lift door (LT) with hot surface facing away from the operator
- Adjustable air inlet in the furnace door
- Exhaust air outlet in rear wall of furnace
- Controller with touch operation B510 (5 programs with each 4 segments), alternative controllers see page 84

Additional Equipment

- Chimney, chimney with fan or catalytic converter see page 16
- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Protective gas connection to purge with non-flammable process gases (not available in combination with chimney, chimney with fan or catalytic converter) not gas tight
- Manual or automatic gas supply system
- Port for thermocouple in the rear wall or in the furnace door
- Please see page 17 for more accessories

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Temperature uniformity of +/− 5K in the empty workspace[5]			Max. connected load	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H[3]	w	d	h	in kW	connection*	in kg	in min[4]
L, LT 5/13	1300	225	170	130	5	490	450	580+320	170	100	80	2.6	1-phase	46	55
L, LT 9/13	1300	250	240	170	9	530	525	630+350	180	170	120	3.3	1-phase	58	60
L, LT 15/13	1300	250	340	170	15	530	625	630+350	180	270	120	3.5	1-phase	71	80

[1]Recommended working temperature for processes with longer dwell times is 1200 °C
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including opened lift door (LT models)
[4]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE)
[5]Temperature uniformity of +/− 5 K with closed fresh-air inlet in empty work space according to DIN 17052-1 at working temperatures above 800 °C see page 77

*Please see page 84 for more information about supply voltage

Muffle furnace LT 5/13 with lift door

Furnace lining with high-quality lightweight refractory brick insulation

Example of an over-temperature limiter

Muffle Furnaces up to 1400 °C

These models stand out for their excellent workmanship, advanced and attractive design, and high level of reliability. Heating elements on support tubes radiating freely into the furnace chamber provide for particularly short heating times and a maximum temperature of 1400 °C. These muffle furnaces are a good alternative to the familiar L(T) ../12 series when higher application temperatures are needed.

Muffle furnace LT 9/14 with lift door

Standard Equipment

- Tmax 1400 °C
- Heating from two sides
- Heating elements on support tubes ensure free heat radiation and a long service life
- Adjustable air inlet integrated in door
- Exhaust air outlet in rear wall of furnace
- Controller with touch operation B510 (5 programs with each 4 segments), alternative controllers see page 84

Additional Equipment

- Chimney, chimney with fan or catalytic converter see page 16
- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Protective gas connection to purge with non-flammable process gases (not available in combination with chimney, chimney with fan or catalytic converter), not gas tight
- Manual or automatic gas supply system
- Please see page 17 for more accessories

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Temperature uniformity of +/– 5K in the empty workspace[5]			Max. connected load	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H[3]	w	d	h	in kW	connection*	in kg	in min[4]
L, LT 5/14	1400	225	175	130	5	490	450	580+320	170	120	80	2.6	1-phase	42	45
L, LT 9/14	1400	250	250	170	9	530	525	630+350	180	190	120	3.5	1-phase	55	50
L, LT 15/14	1400	250	350	170	15	530	625	630+350	180	290	120	3.5	1-phase	63	70

[1]Recommended working temperature for processes with longer dwell times is 1300 °C
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including opened lift door
[4]Heating time of the empty and closed furnace up to Tmax –100 K (connected to 230 V 1/N/PE)
[5]Temperature uniformity of +/– 5 K with closed fresh-air inlet in empty work space according to DIN 17052-1 at working temperatures above 800 °C see page 77

*Please see page 84 for more information about supply voltage

Muffle furnace L 9/14 with flap door

Chimney with fan

Example of an over-temperature limiter

Muffle Furnaces with Embedded Heating Elements in the Ceramic Muffle up to 1100 °C

We particularly recommend the muffle furnace L 9/11/SKM for heat treatment of aggressive substances. The furnace has a ceramic muffle with embedded heating from four sides. The muffle furnace thus combines a very good temperature uniformity with excellent protection of the heating elements from aggressive atmospheres. Another aspect is the smooth, nearly particle free muffle (furnace door made of fiber insulation), an important quality feature.

Muffle furnace L 9/11/SKM with flap door

Standard Equipment

- Tmax 1100 °C
- Muffle heated from four sides
- Furnace chamber with embedded ceramic muffle, high resistance to aggressive gasses and vapours
- Optional flap door (L) which can be used as work platform or lift door (LT) with hot surface facing away from the operator
- Adjustable working air inlet in the door
- Exhaust air outlet in rear wall of furnace
- Controller with touch operation B510 (5 programs with each 4 segments), alternative controllers see page 84

Additional Equipment

- Chimney, chimney with fan or catalytic converter see page 16
- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Protective gas connection to purge with non-flammable process gases (not available in combination with chimney, chimney with fan or catalytic converter) not gas tight
- Manual or automation gas supply system
- Port for thermocouple in the rear wall or in the furnace door
- Please see page 17 for more accessories

Modell	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Max. connected load in kW	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H		connection*	in kg	in min[4]
L 9/11/SKM	1100	230	240	170	9	490	505	580	3.7	1-phase	50	75
LT 9/11/SKM	1100	230	240	170	9	490	505	580+320[3]	3.7	1-phase	50	75

[1]Recommended working temperature for processes with longer dwell times is 1000 °C
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including opened lift door
[4]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE)

*Please see page 84 for more information about supply voltage

Muffle furnace L 9/11/SKM

Gas supply system for non-flammable process gas

Muffle heated from four sides

Ashing Furnaces up to 1100 °C

Ashing furnace LV(T) .. 11 is designed especially for ashing processes to 1050 °C in the laboratory. Applications include determining loss on ignition, ashing food and plastics for subsequent substance analysis. A special fresh-air and exhaust air system ensures that the air is replaced 6 times per minute so that there is always sufficient oxygen for the ashing process. Incoming air passes the furnace heating and is pre-heated to ensure good temperature uniformity.

Ashing furnace LV 5/11

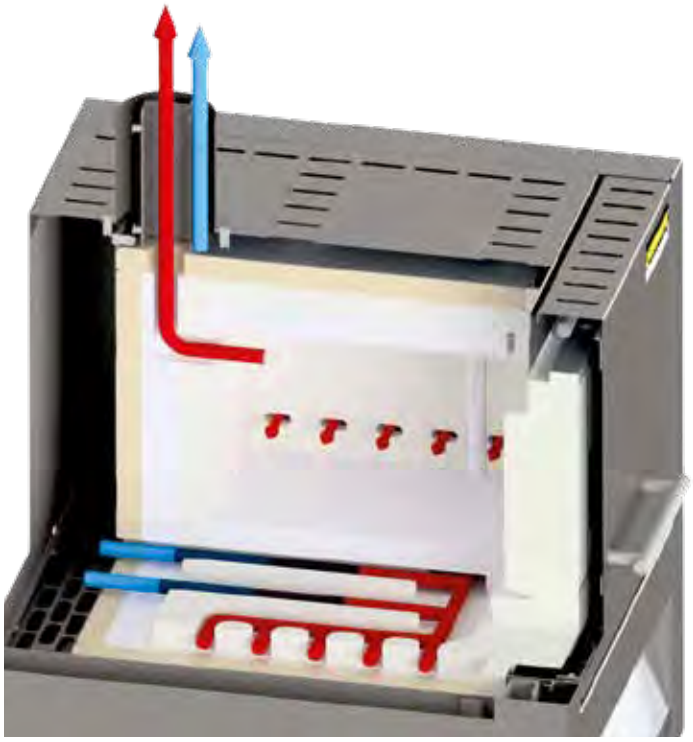
Standard Equipment

- Tmax 1100 °C
- Heating from two sides
- Ceramic heating plates with integral heating element which is safeguarded, and easy to replace
- Air exchange of more than 6 times per minute
- Good temperature uniformity due to preheating of incoming air, temperature uniformity according to DIN 17052-1 to +/– 10 °C in the defined empty work area (from 550 °C) see page 73
- Suitable for many standardized ashing processes according to ISO, ASTM, EN, and DIN
- Optional flap door (LV) which can be used as work platform or lift door (LVT) with hot surface facing away from the operator
- Controller with touch operation B510 (5 programs with each 4 segments), alternative controllers see page 84

Ashing furnace LVT 9/11

Additional Equipment

- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Port for thermocouple in the rear wall or in the furnace door
- Charging rack with closed or perforated trays for loading the furnace in two levels incl. holder for inserting/removing the trays up to a max. temperature of 800 °C and a max. loading weight per layer of 2 kg for the L(T) 9/11 respectively 3 kg for the LV(T) 15/11 see page 13
- Please see page 17 for more accessories



Air inlet and exhaust flow principle in ashing furnaces

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Max. weight of hydrocarbons	Max. evapo-ration rate	Max. connected load	Electrical	Weight	Heating time
Flap door	in °C[1]	w	d	h	in l	W	D	H[3]	in g	g/min	in kW	connection*	in kg	in min[4]
LV 3/11	1100	180	150	120	3	345	390	810	5	0.1	1.3	1-phase	20	45
LV 5/11	1100	205	170	130	5	385	415	810	10	0.2	2.6	1-phase	29	55
LV 9/11	1100	235	240	170	9	415	485	865	15	0.3	3.3	1-phase	36	70
LV 15/11	1100	230	340	170	15	415	590	865	25	0.3	3.6	1-phase	44	80

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Max. weight of hydrocarbons	Max. evapo-ration rate	Max. connected load	Electrical	Weight	Heating time
Lift door	in °C[1]	w	d	h	in l	W	D	H[3]	in g	g/min	in kW	connection*	in kg	in min[4]
LVT 3/11	1100	180	150	120	3	345	390	810	5	0.1	1.3	1-phase	20	45
LVT 5/11	1100	205	170	130	5	385	415	810	10	0.2	2.6	1-phase	29	55
LVT 9/11	1100	235	240	170	9	415	485	865	15	0.3	3.3	1-phase	36	70
LVT 15/11	1100	230	340	170	15	415	590	865	25	0.3	3.6	1-phase	44	80

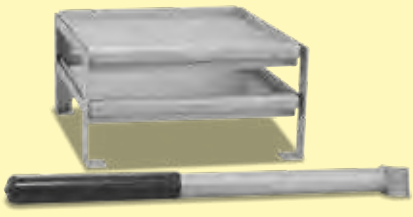
[1]Recommended working temperature for processes with longer dwell times is 1000 °C
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including exhaust tube (Ø 80 mm)
[4]Approx. heating time of the empty and closed furnace up to Tmax –100 K (connected to 230 V 1/N/PE)

*Please see page 84 for more information about supply voltage

Charging rack for model	Articel No.	Tmax	Outer dimensions in mm			Number of levels	Dimensions shelf (level 1) in mm			Max. weight per level
		in °C	W	D	H		W	D	H	in kg
LV(T) 9/11	6000079693	800	215	218,5	95	2	202	202	47	2
LV(T) 15/11	6000078459	800	215	318,5	95	2	202	302	47	3

Furnace chamber with air inlet openings for air exchange of more than 6 times per minute

Ashing furnace LV 5/11 with port for thermocouple in the rear wall of furnace



Charging rack to load the furnace in different levels

Ashing Furnaces with Integrated Exhaust Gas Cleaning up to 1100 °C

The ashing furnaces L ../11 BO are specially designed for processes in which organic substances have to be evaporated from the charge, as e. g. during debinding of small ceramic products after additive manufacturing. Other processes, for which this furnace series is designed for, are for example, ashing of (food) samples, thermal cleaning of injection molding tools or loss on ignition determination.

The ashing furnaces therefore have a passive safety system and integrated exhaust gas post combustion. An exhaust gas fan extracts the exhaust gases from the furnace and simultaneously supplies fresh air to the furnace atmosphere with the result that sufficient oxygen is always available for the process. The incoming air is guided behind the furnace heating and preheated to ensure good temperature uniformity. Exhaust gases are directly led from the furnace chamber to the integrated post combustion system, where they are burned and catalytically cleaned. After the debinding/ashing process (up to max. 600 °C), a sintering process up to max. 1100 °C can be performed.

Ashing furnace L 40/11 BO

Standard Equipment

- Tmax 600 °C for the incineration process
- Tmax 1100 °C for the subsequent process
- Three-side heating (both sides and bottom)
- Ceramic heating plates with embedded heating wire
- Steel collecting pan protects the bottom insulation
- Spring-assisted closing of the furnace door (flap door) with mechanical locking against unintentional opening
- Thermal/catalytic post combustion, integrated in the exhaust channel, up to 600 °C in function
- Temperature control of post combustion can be set up to 850 °C
- Monitored exhaust air
- Inlet-air preheated through the bottom heating plate
- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Controller with touch operation C550 (10 programs with each 20 segments), alternative controllers see page 84

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Max. loading weight of organic substances	Max. evaporation rate of organic substances	Connected load	Electrical	Weight
	in °C[1]	w	d	h	in l	W	D	H[3]	in g	g/min	in kW	connection*	in kg
L 9/11 BO	1100	230	240	170	9	415	575	750	75	1.0	7.0	3-phase	60
L 24/11 BO	1100	280	340	250	24	490	675	800	150	2.0	9.0	3-phase	90
L 40/11 BO	1100	320	490	250	40	530	825	800	200	2.1	11.5	3-phase	110

[1]Recommended working temperature for processes with longer dwell times is 1000 °C
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including exhaust tube (Ø 80 mm)

*Please see page 84 for more information about supply voltage

Ashing furnace L 9/11 BO

Steel collecting pan protects the bottom insulation

Schematic presentation of air circulation in ashing furnace L 24/11 BO

Muffle Furnace incl. Scale and Software for Determination of Combustion Loss

This weighing furnace with integrated precision scale and software, was designed especially for combustion loss determination in the laboratory. The determination of combustion loss is necessary, for instance, when analyzing sludges and household garbage, and is also used in a variety of other processes for the evaluation of results. The difference between the charged total mass and the combustion residue is the combustion loss. During the process, the software included records both the temperature and the weight loss.

Weighing furnace L 9/11/SW with flap door

Standard Equipment

Like muffle furnaces L(T), except:

- Delivery includes base, ceramic plunger with base plate in the furnace lining, precision scale and software package
- 4 scales available for different maximum weights and scaling ranges
- Process control and documentation for temperature and combustion loss via VCD software package for monitoring, documentation and control see page 86
- Controller with touch operation B510 (5 programs with each 4 segments), alternative controllers see page 84

Additional Equipment

- Chimney, chimney with fan or catalytic converter
- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Port for thermocouple in the rear wall or in the furnace door
- Please see page 26 for more accessories

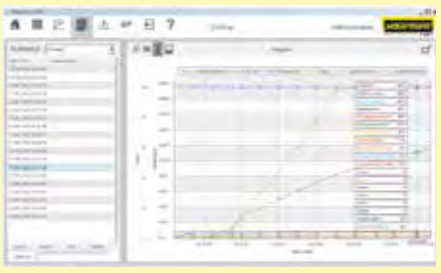
Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Max. connected	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H	load in kW	connection*	in kg	in min[4]
L(T) 9/11/SW	1100	230	240	170	9	415	455	740+240[3]	3.3	1-phase	50	65
L(T) 9/12/SW	1200	230	240	170	9	415	455	740+240[3]	3.3	1-phase	50	75

[1]Recommended working temperature for processes with longer dwell times is 1000 °C (L 9/11) rsp. 1100 °C (L 9/12)
*Please see page 84 for more information about supply voltage
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including opened lift door (Model LT ..)
[4]Heating time of the empty and closed furnace up to Tmax –100 K (connected to 230 V 1/N/PE)

Scale type	Readability in g	Maximum weighing range in g	Weight of plunger in g	Calibration value in g	Minimum load in g
EW-2200	0.01	2200 incl. plunger	850	0.1	0.5
EW-4200	0.01	4200 incl. plunger	850	0.1	0.5
EW-6200	0.01	6200 incl. plunger	850	-	1.0
EW-12000	0.10	12000 incl. plunger	850	1.0	5.0

4 scales available for different maximum weights and scaling ranges

Example of an over-temperature limiter



Graphic display of process curve

Exhaust Systems/Accessories

Article No.: 631000140

Exhaust Vent

Exhaust vent for collection and upstream direction of escaping gases

Article No.: 6000140311

Chimney with Fan

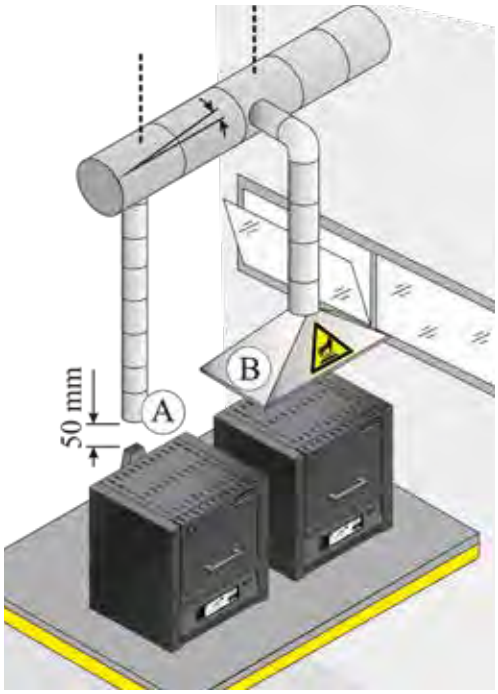
Exhaust gases are better removed from the furnace and discharged. The B500 - P580 controllers can be used to switch the chimney with fan automatically (not for models L(T) 15.., L 1/12, LE 1/11, LE 2/11).*

Article No.: 631000166

Catalytic Converter with Fan

Organic components are catalytically cleaned at about 600 °C, broken into carbon dioxide and water vapour. Irritating odors are thus largely eliminated. The B500 - P580 controllers can be used to switch the catalytic converter automatically (not for models L(T) 9/14, L(T) 15.., L 1/12, LE 1/11, LE 2/11).*

* Note: If other controller types are used an adapter cable for connection to mains supply has to be ordered separately. The device will be activated by plugging in the socket.



Various ways of removing the exhaust air

Exhaust Air Extraction

When exhaust gases are generated during the process it is mandatory to guide them outside in an adequate way. The relevant operating instructions must be always taken into consideration. When exhaust gas pipings are installed it is always necessary that a local ventilation technician lays out the system in accordance to the real environment.

There are different possibilities to guide the exhaust gases out. In many cases the furnace is positioned under a laboratory extraction provided by the customer (B). In these cases the use of an exhaust vent is recommended just to guide the gases upwards.

For this purpose metal exhaust gas pipes with NW 80 to NW 120 (A) can be used. They must be installed continuously rising and fastened to the wall or ceiling. Center the pipe over the furnace vent (for models with vent fan or catalytic converter, NW 120 is necessary. The exhaust gas pipe must not be installed with a tight fit to the furnace vent pipe since this would prevent any bypass effect. This is necessary so that not too much fresh air is sucked in by the furnace.

Article No.:
699000279: saggar
110 x 75 x 30 mm
699000985: lid
110 x 75 x 5 mm

Square Saggar for Furnaces LHTC and LHT, Tmax 1600 °C

The load is placed in ceramic saggars for optimal utilization of the furnace space. Up to three saggars can be stacked on top of each other in the furnace. In models LHT 01/17 D and LHTCT 01/16 up to two saggars can be stacked. Each saggar has cut-outs for better ventilation. The top saggar should be closed with a lid made of ceramic.

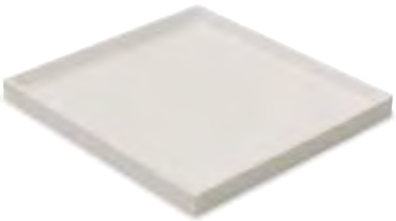
Article No.:
699001054: sintering dish
Ø 115 x 15 mm
699001055: spacer ring
Ø 115 x 20 mm

Round Saggar (Ø 115 mm) for Furnaces LHT/LB, Tmax 1650 °C

These saggars are perfectly suited for furnaces LHT/LB. The load is placed in the saggars. Up to three saggars can be stacked on top of each other in order to use the overall furnace chamber.

Select between different bottom plates and collecting pans for protection of the furnace and easy loading (for models L, LT, LE, LV and LVT on pages 6 - 15). Steel collecting pans may deform/distort under heat. For batches that are sensitive to tipping, ceramic shelves to protect the furnace bottom are recommended..

Ceramic Ribbed Plate, Tmax 1200 °C



Ceramic Collecting Pan, Tmax 1300 °C

Stainless Steel Collecting Pan, Tmax 1100 °C

For models	Ceramic ribbed plate		Ceramic collecting pan		Stainless steel collecting pan (Material 1.4828)	
	Articel No.	Dimensions in mm	Articel No.	Dimensions in mm	Articel No.	Dimensions in mm
L 1, LE 1	691601835	110 x 90 x 12.7	-	-	691404623	85 x 100 x 20
LE 2	691601097	170 x 110 x 12.7	691601099	100 x 160 x 10	691402096	100 x 180 x 20
L 3, LT 3, LV 3, LVT 3	691600507	150 x 140 x 12.7	691600510	150 x 140 x 20	691400145	150 x 140 x 20
L 5, LT 5, LV 5, LVT 5	691600508	190 x 170 x 12,7	691600511	190 x 170 x 20	691400146	190 x 170 x 20
LE 6	691600508	190 x 170 x 12,7	691600511	190 x 170 x 20	6000095954	160 x 200 x 20
L 9, LT 9, LV 9, LVT 9, N 7	691600509	240 x 220 x 12.7	691600512	240 x 220 x 20	691400147	240 x 220 x 20
LE 14	691601098	210 x 290 x 12.7	-	-	691402097	210 x 290 x 20
L 15, LT 15, LV 15, LVT 15, N 11	691600506	340 x 220 x 12.7	-	-	691400149	220 x 340 x 20
L 24, LT 24	691600874	340 x 270 x 12.7	-	-	691400626	270 x 340 x 20
L 40, LT 40	691600875	490 x 310 x 12.7	-	-	691400627	310 x 490 x 20

Article No.:
493000004

Gloves, Tmax 650 °C

For protection of the operator when loading or removing hot materials

Article No.:
491041101

Gloves, Tmax 700 °C

For protection of the operator when loading or removing hot materials

Article No.:
493000002 (300 mm)
493000003 (500 mm)

Charing Tongs

For easy loading and unloading of the furnace