

## Bale-Out Furnaces T

### Electrically Heated, for Melting and Holding



Bale-out furnace T 110/11



Four side heating for excellent temperature uniformity



Manual ladling from a bale-out furnace T 80/10

Bale-out furnace T 800/11



Due to their high-grade insulation and optimized connected loads the bale-out furnaces can be used both for melting and holding. They feature good melting performance together with outstanding temperature uniformity in the melt. The 1100 °C version can be used for melting aluminum, the 1200 °C version for brass as well. The 1300 °C version can also be used for melting bronze alloys. The bale-out furnaces are fitted with multi-layer insulation.

- T ../11 with Tmax of 1100 °C for aluminum or zinc, with a maximum melt bath temperature, depending on the condition of the crucible, of 950 °C
- T ../12 with Tmax of 1200 °C also suitable for brass, with a maximum melt bath temperature, depending on the condition of the crucible, of 1050 °C
- T ../13 with Tmax of 1300 °C, also suitable for bronze alloys, with a maximum melt bath temperature, depending on the condition of the crucible, of 1150 °C
- Four-side heating using electric heating elements, freely radiating on support tubes
- Simple replacement of individual heating elements. In case of crucible breakage, only the defective heating elements on each level need to be replaced
- Heating of furnaces up to 60 kW power rating controlled using long-lasting, noiseless solid-state-relays
- Heating of furnaces beyond 60 kW with contactors
- High melting performance with temperature uniformity in the melt
- Insulation constructed in multiple layers with lightweight refractory bricks on the hot face
- Emergency outlet for safe draining of the melt in case of crucible breakage
- Only fiber materials are used which are not classified as carcinogenic according to TRGS 905, class 1 or 2
- No exhaust gas discharge needed
- Integrated safety system which continues to operate the furnace at reduced power in case of malfunction in the bath thermocouple, in order to prevent the freezing of the melt
- Over-temperature limiter in furnace chamber for protection against overheating. The limiter switches the heating off when the set limit temperature is reached, and only switches it back on after the temperature has fallen again
- Furnace chamber control with temperature measurement behind the crucible, recommended for melting
- Crucible not included in the standard version
- For Information on temperature regulation see pages 27 - 29
- Defined application within the constraints of the operating instructions

#### Additional equipment

- Crucible of clay-graphite or SiC
- Work platform
- Collecting pan under the emergency outlet see page 26
- Crucible breakage monitor with visual and audible signal (not for 1300 °C models)
- SMS-alarm message to one or more mobile phones, e.g. in case of crucible breakage



- Bath control with thermocouples in the furnace chamber and in the melt (not for 1300 °C models). The furnace temperature is controlled through the melt. Temperature overshoots are reduced, thus the quality of the melt is improved
- Heating system operated through thyristors in phase-angle mode assures an even charging of heating elements
- Multi-step switching of the furnace heat (see page 27). In holding mode, a switch or the controller is used to turn off one heating section in order to reduce the electrical rating
- Higher electrical ratings to increase melting performance
- Process control and documentation via Nabertherm Control Center (NCC) for monitoring, documentation and control see page 27
- For information on other accessories see page 25 - 26

Bale-out furnace T 80/13 for gunmetal in a sand foundry shop



Emergency outlet for the safe draining of melt in case of crucible breakage

Model	Tmax furnace	Tmax melt bath	Crucible	Capacity		Heating power in kW <sup>4</sup>	Melting performance <sup>3</sup>		Consumption Holding Lid closed/open kWh/h	Outer dimensions <sup>5</sup> in mm			Weight in kg
	°C	°C		kg Al	kg Cu		kg/h Al	kg/h Cu		W	D	H	
T 10/11	1100	950	A 70	20	-	16	32 <sup>1</sup>	-	3/5 <sup>1</sup>	860	860	790	400
T 20/11	1100	950	A 150	45	-	20	42 <sup>1</sup>	-	3/6 <sup>1</sup>	940	940	790	460
T 40/11	1100	950	A 300	90	-	26	58 <sup>1</sup>	-	3/7 <sup>1</sup>	1010	1010	880	580
T 80/11	1100	950	BU 200	200	-	50	126 <sup>1</sup>	-	4/9 <sup>1</sup>	1110	1110	940	650
T 110/11	1100	950	BU 300	300	-	60	136 <sup>1</sup>	-	5/10 <sup>1</sup>	1200	1200	1040	880
T 150/11	1100	950	BU 350	350	-	60	147 <sup>1</sup>	-	5/10 <sup>1</sup>	1200	1200	1250	900
T 180/11	1100	950	BU 500	500	-	70	168 <sup>1</sup>	-	7/15 <sup>1</sup>	1370	1370	1250	1080
T 240/11	1100	950	BU 600	600	-	80	180 <sup>1</sup>	-	7/15 <sup>1</sup>	1370	1370	1350	1200
T 360/11	1100	950	BN 800	800	-	110	200 <sup>1</sup>	-	8/17 <sup>1</sup>	1510	1510	1490	2000
T 400/11	1100	950	BN 900	900	-	110	200 <sup>1</sup>	-	10/20 <sup>1</sup>	1510	1510	1590	2100
T 500/11	1100	950	BN 1200	1200	-	110	200 <sup>1</sup>	-	11/21 <sup>1</sup>	1510	1510	1640	2450
T 600/11	1100	950	BU 1310	1300	-	110	200 <sup>1</sup>	-	13/23 <sup>1</sup>	1615	1615	1730	2550
T 650/11	1100	950	BP 1000	1400	-	110	240 <sup>1</sup>	-	13/20 <sup>1</sup>	1685	1685	1360	2400
T 700/11	1100	950	BU 1510	1500	-	140	240 <sup>1</sup>	-	13/23 <sup>1</sup>	1615	1615	1850	2750
T 800/11	1100	950	BU 1800	1800	-	140	240 <sup>1</sup>	-	15/25 <sup>1</sup>	1685	1685	1830	2800
T 10/12	1200	1050	A 70	20	70	16	32 <sup>1</sup>	47 <sup>2</sup>	5/8 <sup>2</sup>	860	860	770	440
T 20/12	1200	1050	A 150	45	150	20	42 <sup>1</sup>	63 <sup>2</sup>	5/10 <sup>2</sup>	940	940	770	520
T 40/12	1200	1050	A 300	90	300	26	58 <sup>1</sup>	84 <sup>2</sup>	5/12 <sup>2</sup>	1010	1010	860	600
T 80/12	1200	1050	BU 200	200	650	50	126 <sup>1</sup>	190 <sup>2</sup>	5/15 <sup>2</sup>	1110	1110	930	760
T 10/13	1300	1150	A 70	20	70	16	32 <sup>1</sup>	47 <sup>2</sup>	5/8 <sup>2</sup>	900	900	890	600
T 20/13	1300	1150	A 150	45	150	20	42 <sup>1</sup>	63 <sup>2</sup>	5/10 <sup>2</sup>	980	980	890	640
T 40/13	1300	1150	A 300	90	300	26	58 <sup>1</sup>	84 <sup>2</sup>	5/12 <sup>2</sup>	1050	1050	970	760
T 80/13	1300	1150	BU 200	200	650	50	126 <sup>1</sup>	190 <sup>2</sup>	5/15 <sup>2</sup>	1150	1150	1030	960

<sup>1</sup>At 700 °C

<sup>2</sup>At 1000 °C

<sup>5</sup>External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

<sup>3</sup>The specified melting performances are maximum values. In practice, approx. 80 % are achieved.

<sup>4</sup>Depending on furnace design connected load might be higher