## Tilting Furnaces K
Electrically Heated, for Melting and Holding

Tilting furnace K 150/12

Tilting furnace K 150/12 and bale-out furnace T 180/11 as premelting and holding system

Charging of transport ladle with tilting furnace K 360/12

Tilting furnace K 40/13 with extended spout (sculpture foundry Knaak)

The electrically heated tilting furnaces are characterized by high melting performance with very temperature uniformity in the melt. Aluminum and brass can be melted in the 1200 °C version. The 1300 °C version can also be used to melt bronze alloys.

- K ../12 with Tmax of 1200 °C also suitable for aluminum or brass, with a maximum melt bath temperature, depending on the condition of the crucible, of 1050 °C
- K ../13 with Tmax of 1300 °C also suitable for bronze alloys or brass, with a maximum melt bath temperature of 1150 °C
- Heating from three sides using electric heating elements, radiating freely on support tubes, simple exchange of individual heating elements
- Multi-step wiring of the heating elements for furnaces with more than 50 kW electrical rating
- 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
- Incl. crucible
- Electro-hydraulic tilting system with flame resistant HFC hydraulic fluid
- Safe, even, and precise pouring thanks to optimum pivot point in the furnace and manual throttling valve operation
- 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
- Information on temperature regulation see page 27 - 29
- Defined application within the constraints of the operating instructions

3 tilting furnaces K 300/12 with work platform for melting of aluminum

Additional equipment

- Work platform for easy charging
- Collecting pan under the emergency outlet see page 26
- Crucible breakage monitor with visual and audible signal (only for models K ../12)
- SMS-message to one or more mobile phones in case of crucible breakage. One or more furnaces can be connected to the messaging device in parallel
- Bath control with thermocouples in the furnace chamber and in the melt. 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 provides for even load on the heating elements and results in longer service life
- 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

Filling a mould with liquid bronze (photographer Andrea Künstle)

| Model | Tmax furnace °C | Tmax melt bath °C | Crucible | Capacity kg Al | Capacity kg Cu | Heating power in kW[4] | Melting performance[3] kg/h Al | Melting performance[3] kg/h Cu | Consumption Holding Lid closed/open kWh/h | Outer dimensions[3] in mm W | Outer dimensions[3] in mm D | Outer dimensions[3] in mm H | Weight in kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K 10/12 | 1200 | 1050 | A 70 | 20 | 70 | 16 | 32[1] | 47[2] | 3/7[1] | 1890 | 1240 | 1390 | 950 |
| K 20/12 | 1200 | 1050 | A 150 | 45 | 150 | 20 | 42[1] | 63[2] | 3/7[1] | 1890 | 1400 | 1410 | 1400 |
| K 40/12 | 1200 | 1050 | A 300 | 90 | 300 | 26 | 58[1] | 84[2] | 3/7[1] | 2000 | 1450 | 1490 | 1550 |
| K 80/12 | 1200 | 1050 | TP 287 | 180 | 550 | 50 | 126[1] | 190[2] | 4/10[1] | 2050 | 1520 | 1580 | 1750 |
| K 150/12 | 1200 | 1050 | TP 412 | 330 | 970 | 60 | 147[1] | 220[2] | 5/12[1] | 2120 | 1600 | 1860 | 2350 |
| K 180/12 | 1200 | 1050 | TP 412H | 370 | 1200 | 60 | 160[1] | 240[2] | 5/12[1] | 2120 | 1600 | 1860 | 2450 |
| K 240/12 | 1200 | 1050 | TP 587 | 570 | - | 80 | 180[1] | - | 8/17[1] | 2260 | 1760 | 1860 | 2800 |
| K 300/12 | 1200 | 1050 | TP 587H | 650 | - | 80 | 210[1] | - | 9/18[1] | 2260 | 1760 | 1960 | 3200 |
| K 360/12 | 1200 | 1050 | BUK 800 | 750 | - | 100 | 260[1] | - | 11/20[1] | 2370 | 1810 | 1950 | 3500 |
| K 400/12 | 1200 | 1050 | TBN 1100 | 1050 | - | 126 | 295[1] | - | 12/22[1] | 2370 | 1930 | 2100 | 3700 |
| K 10/13 | 1300 | 1150 | A 70 | 20 | 70 | 16 | 32[1] | 47[2] | 5/8[2] | 1890 | 1240 | 1440 | 1000 |
| K 20/13 | 1300 | 1150 | A 150 | 45 | 150 | 20 | 42[1] | 63[2] | 5/8[2] | 1890 | 1400 | 1460 | 1300 |
| K 40/13 | 1300 | 1150 | A 300 | 90 | 300 | 26 | 58[1] | 84[2] | 5/8[2] | 2000 | 1450 | 1540 | 1650 |
| K 80/13 | 1300 | 1150 | TP 287 | 180 | 550 | 50 | 126[1] | 190[2] | 6/11[2] | 2050 | 1520 | 1580 | 1950 |

[1]At 700 °C
[2]At 1000 °C
[3]The specified melting performances are maximum values. In practice, approx. 80 % are achieved.
[4]Depending on furnace design connected load might be higher
[5]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.