



Technology for production of refractory crucibles with fused surface

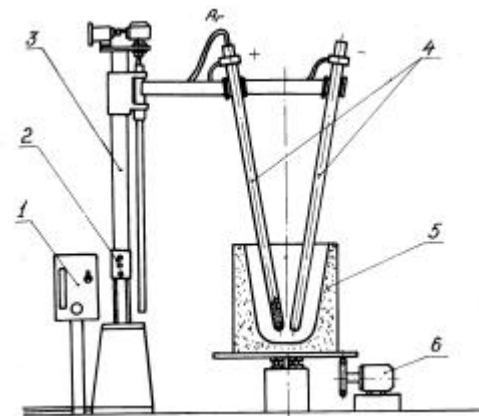
In production process, crucible formation with preset configuration and dimensions is carried out by means of vacuum and centrifugal forces from powder refractors without binders. The subsequent fusion of crucible working surface is realized by plasma arc of direct current in argon or nitrogen atmosphere.

The data below shows the basic technological parameters obtained at the production of melting crucibles from quartz sand.

Crucible diameter, m	0,120	0,120	0,130	0,218
Crucible height, m	0,070	0,080	0,075	0,100
Wall thickness, m	0,015	0,012	0,012	0,007
Power input, kW	51,6	54,0	59,5	76,5
Process duration, h	0,058	0,058	0,062	0,17

Specific electric power consumption for the whole process constitutes 3 - 4 kWth/kg

High effectiveness and environmental friendliness of the developed technology allows to apply it at crucible production for steel and alloys, cast iron and copper alloys, semiconductors and optical glass manufacture. Using the developed melting equipment it is possible to obtain crucibles of up to 0.7 m diameter.



Plasma installation for manufacturing melting crucibles of refractory powders

- 1 – desk for controlling gas supply and electric current;
- 2 – desk for controlling plasma generators transfer;
- 3 – column;;
- 4 – plasma generators;
- 5 – vacuum mould with powder;
- 6 – mould's electric drive.

Please forward your proposals and suggestions to:

34/1 Vernadsky Avenue, 03680, Kiev-142, Ukraine, Physico-Technological Institute of Metals and Alloys of the National Academy of Sciences of Ukraine. Tel. (044) 444-35-15, Fax (044) 459-50-29, E-mail: metal@ptima.kiev.ua