

The invention relates to metallurgy, in particular to plasma technology of direct production of iron. Main and additional plasmatrons are used as heating sources of charging materials. Main plasmatrons are set in furnace walls, each is equipped with the unit of fine-grained charge material introduction by the carrier gas. The section of metal tapping contains the adjacent ones with the separating wall, closed by the chamber lids, one of which on the bottom is connected by a channel with the melt bath, and in the top part - with the cavity of the other chamber. The section of slag tapping includes chambers adjacent with a side furnace wall, cavities of which are united in the top part. One chamber in the bottom part is connected by a channel with the slag layer. In the lid of the first chamber of section of metal tapping it is set auxiliary plasmatron, and in the lid of the first chamber of slag tapping section a gas-fired burner or plasmatron is set. The furnace roof arch is made multidiameter. On the bottom step of the roof arch feed screw apparatus of the starting material, and jets for oxygen-containing gas supply are disposed. Technical result: possibility of uninterrupted cycle of steel production, chemical reactions take place under the slag layer, which lowers the release into the atmosphere.