The invention relates to the tube rolling production, namely to the production of hot-rolled seamless tubes from titanium-based alloys. A method for production of hot-rolled seamless tubes from titanium-based alloys includes heating the billet before deformation to set temperature, piercing of heated billet on the mill of cross-helical rolling and rolling of pierced billet into the pipe on reeling machine and sizing mill. Novelty of the method consists in that the pipe is manufactured from cast undeformed billet, preheating of which is performed to the temperature, which is by 2... 5% lower than lower temperatures of β -region of the phase diagram of alloy. Piercing of billet is performed with ovalization coefficient of 1.075... 1.09, rolling is performed with deformation degree of 30% on the wall of pierced rough tube, and the rolling is terminated at a temperature, which corresponds to α -region of the phase diagram of alloy. The application of the method will make it possible to obtain high-quality hot-rolled seamless tubes from titanium-based alloys.