

The invention relates to nuclear engineering, The method for making absorbing rod element of nuclear reactor includes formation of surrounding section on cup-like end part, formation of surrounded section on hafnium rod as circular alternating lugs and grooves, connection with welding of end part at side of surrounding section and rod, and at side of bottom – to shell filled with neutron-absorbing material. At outer side surface of surrounding section of end part one forms section made of alternating circular lugs and grooves with pitch equal to pitch of alternating grooves and lugs on hafnium rod. The rod is placed in end part in such way that its circular grooves are placed in front of circular lugs of end part. Circular grooves on hafnium rod are formed with depth that is larger than half of thickness of the shell. Surrounding section of circular part and surrounded section of rod are made as such that relation takes place:

$$4S_{ob}/\pi d^2 \leq (D_k^2 - D_{BH}^2)/d^2 \leq k\sigma_{CT}/\sigma_{ob},$$

where S_{ob} – area of cross-section of the shell, d – diameter of groove on rod, D_k – diameter of groove on end part, D_{BH} – inner diameter of the end part, $k=(1,0\dots2,8)$, σ_{CT} and σ_{ob} – value of strength limit of rod and shell materials, respectively.

The method provides higher reliability of operation.