Optimization of magnetic probe design for current measuring in a powerful discharge in dense gas

Pinchuk M E[1,@], Budin A V[1], Leontev V V[1], Lazukin A V[2] and Bogomaz A A[1]

[1] Institute for Electrophysics and Electrical Power of the Russian Academy of Sciences, Dvortsovaya Naberezhnaya 18, Saint-Petersburg 191186, Russia
[2] National Research University Moscow Power Engineering Institute, Krasnokazarmennaya 14, Moscow, Moscow 111250, Russia

[@] pinchme@mail.ru

Since [1] an original magnetic probe diagnostics has been utilised in our researches for current density measuring in a powerful discharge in a dense gas. The first experimental results were shown in [2].The magnetic probe, working in condition of high current high pressure discharge with extreme heat and shock load, was designed and created. The original probe construction has been gradually evolved. In the report we present an evolution the probe construction and practical approaches for measurenents at current up to 1 MA and initial pressure up to 10 MPa.

[1] Pinchuk M, Budin A, Leontev V, Leks A, Bogomaz A, Rutberg P and Pozubenkov A 2014 *XXIX International Conference On Equations Of State For Matter* (Chernogolovka: IPSP RAS) pp 181–2
[2] Pinchuk M, Budin A, Leontev V, Leks A, Bogomaz A, Rutberg P and Pozubenkov A 2014 *Izvestiya Vuzov. Fizika* **57**(12-2) 240–4