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ABSTRACT

The present invention discloses a single-mode optical fiber having an automatic control heat source specifically produced for hydraulic seepage measurement, which sequentially comprises a single-core optical fiber, an inner protective elastic layer, a heat insulation steel ring, an inner-layer filling protection ring, an elastic hard ring, and an anti-seepage heat insulation hard sleeve ring arranged from inside to outside. The single-core optical is connected to a plurality of outer circular sheathing protection pipes respectively, the outer circular sheathing protection pipes sequentially pass through the inner protective elastic layer, the heat insulation steel ring, the inner-layer filling protection ring and the elastic hard ring and are connected to the anti-seepage heat insulation hard sleeve ring, each outer circular sheathing protection pipe is filled with a drainage water storage cotton sleeve, the drainage water storage cotton sleeve is connected to a second filter screen, and the second filter screen is connected to a first filter screen externally. The single-mode optical fiber having an automatic control heat source specifically produced for hydraulic seepage measurement according to the present invention implements automatic temperature changing of the single-core optical fiber by arranging the inner protective elastic layer, the heat insulation steel ring, the inner-layer filling protection ring, the elastic hard ring and the anti-seepage heat insulation hard sleeve ring outside the single-core optical fiber, and a great temperature difference is formed between the single-core optical fiber and the environment; when the single-mode optical fiber is applied to seepage monitoring, the seepage identification level and the practicality can be significantly improved.

Fig. 1