

HOLLOW-CORE MICROSTRUCTURED OPTICAL FIBER WITH ADDITIVE MARKING, PREFORM AND FIBER DRAWING DETECTION METHOD

Abstract

The present invention discloses a hollow-core microstructured optical fiber with an additive marking, a preform and a fiber drawing detection method. The optical fiber includes a cladding hollow-core sleeve and a plurality of anti-resonant microstructure units arranged on and attached to the inner wall of the cladding hollow-core sleeve. The anti-resonant microstructure units are configured to form an air fiber core region with an inscribed circle size thereof. The plurality of anti-resonant microstructure units are rotationally symmetric. One or more additive marking units are provided on the outer side of a fiber core, such that an end surface structure of the hollow-core microstructured optical fiber exhibits asymmetry. The area of the additive marking unit accounts for 0.002% - 2% of that of the cladding hollow-core sleeve. In the hollow-core microstructured optical fiber with the additive marking of the present invention, by means of the additive marking units, the anti-resonant microstructure units can be marked and identified in fiber drawing detection so as to evaluate the geometric uniformity of the hollow-core microstructured optical fiber, thereby providing reference and guidance for the subsequent production of a preform of the hollow-core microstructured optical fiber, and performing process adjustment and improvement in a timely manner.

(Fig. 2)