

HOLLOW-CORE MICROSTRUCTURED OPTICAL FIBER WITH REFRACTIVE INDEX MARKING, AND METHODS FOR MANUFACTURING AND DETECTING THE SAME

Abstract

Disclosed is a hollow-core microstructured optical fiber with refractive index marking, and methods for manufacturing and detecting the same. The optical fiber includes a cladding hollow-core sleeve and a plurality of anti-resonant microstructured units arranged on an inner wall of the cladding hollow-core sleeve, where the plurality of anti-resonant microstructured units are rotationally symmetric. The cladding hollow-core sleeve is provided with one or more refractive index marking units, with a refractive index difference existing between each of the refractive index marking units and the sleeve, and an end face of the hollow-core microstructured optical fiber has an asymmetric structure. The disclosure provides a hollow-core microstructured optical fiber with refractive index marking and a method for manufacturing the same, which can quickly identify the anti-resonant microstructured units in the hollow-core microstructured optical fibers, facilitate online control of the size uniformity of the anti-resonant microstructured units, thereby advantageously reducing the transmission loss of the hollow-core microstructured optical fiber; meanwhile, during coupling of the hollow-core microstructured optical fibers, it is convenient to identify different anti-resonant microstructured units, thereby reducing the coupling loss of the hollow-core microstructured optical fibers.

Fig 1.