

**BENDING-RESISTANT LARGE CORE DIAMETER HIGH NUMERICAL
APERTURE MULTIMODE FIBER**

ABSTRACT

Disclosed is a bending-resistant large core diameter high numerical aperture
5 multimode fiber, comprising a core and a cladding which coats the core. The radius R1 of
the core is 28 to 50 microns; a refractive index profile of the core has a parabola shape; the
distribution index α is 1.9 to 2.2, and the maximum relative refractive index difference
 $\Delta 1\%_{\max}$ is 1.9% to 2.5%; and the cladding outside the core comprises an inner cladding
and/or a trench cladding, and an outer cladding in sequence from the inside out. The radius
10 R2 of the inner cladding is 28 to 55 microns, and the relative refractive index difference $\Delta 2$
% is -0.1% to 0.1%. The radius R3 of the trench cladding is 28 to 60 microns, and the
relative refractive index difference $\Delta 3\%$ is -0.15% to -0.8%. The bandwidth and the
numerical aperture of the bending-resistant large core diameter high numerical aperture
multimode fiber are increased, so that the light gathering capacity of the fiber is improved
15 greatly and the multimode fiber is easier to be coupled to an LED light source. The macro
bending attached attenuation of the fiber is reduced obviously, the bending resistance
performance of the fiber is improved, and the optical power transmission performance is
enhanced.

20 Fig. 1