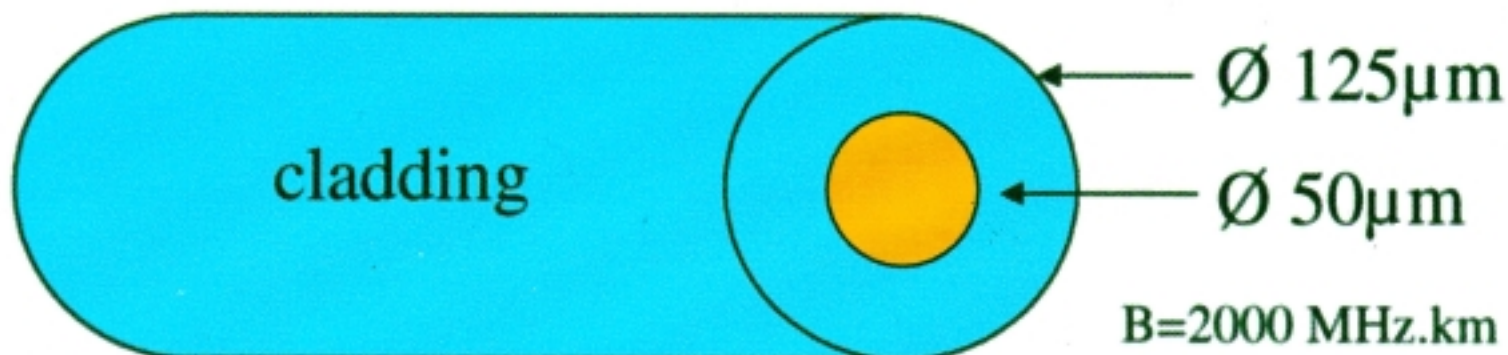
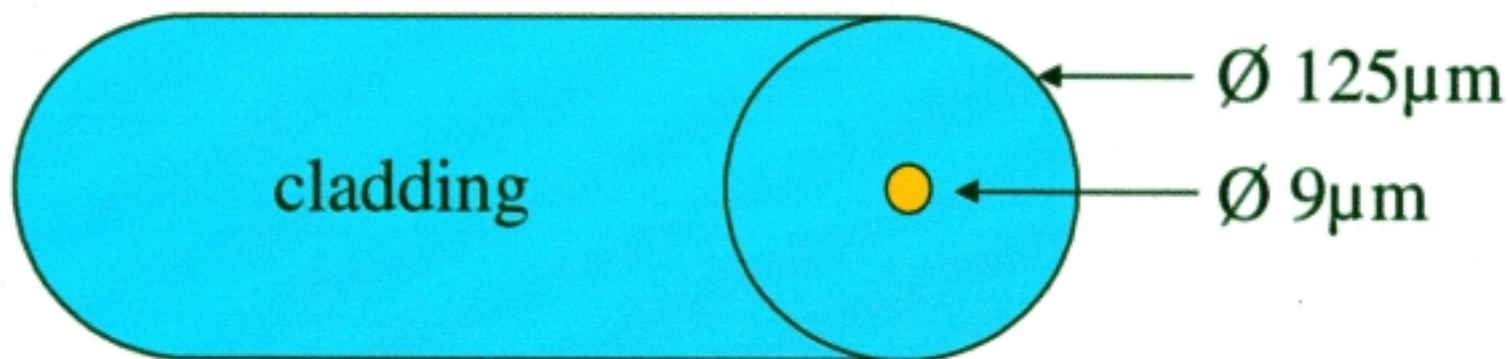




Multimode & Single-mode fibre



Multimode graded index fibre

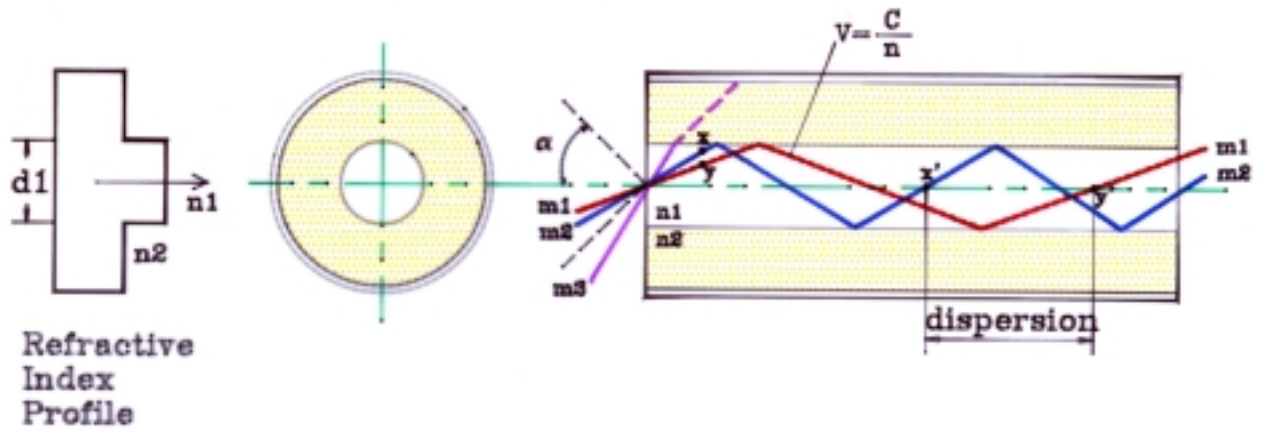


Single-mode fibre

Theoretical Bandwidth of Single-mode fibre is **75 THz**

OPTICAL FIBERS

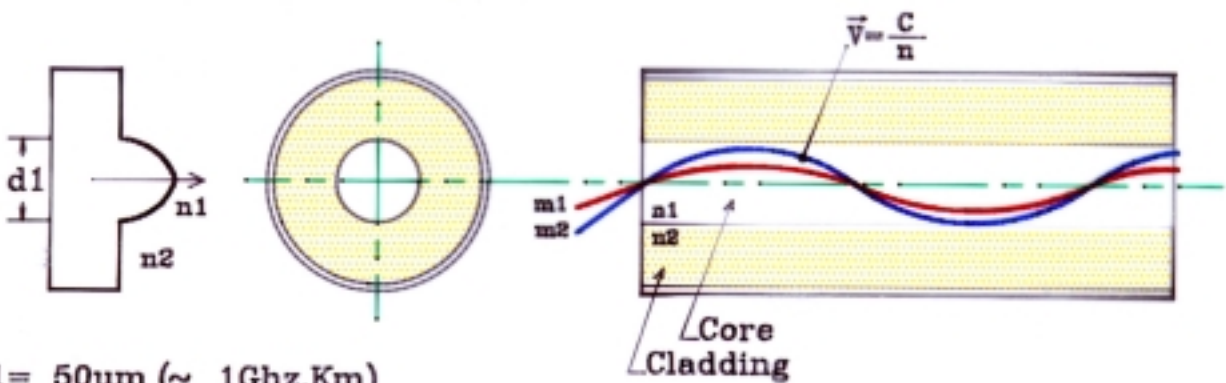
1) Step index multimode fibre:



$$d_1 = 100 \dots 500 \mu\text{m} (\sim 20 \text{ Mhz.Km})$$

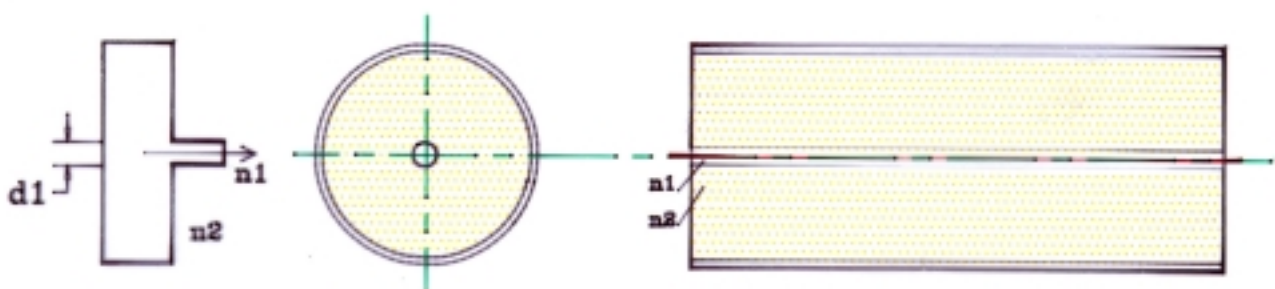
$$\text{Numeric Aperture: } \sqrt{n_1^2 - n_2^2} = \sin \alpha$$

2) Graded index multimode fibre:



$$d_1 = 50 \mu\text{m} (\sim 1 \text{ Ghz.Km})$$

3) Single mode fibre:



$$d_1 = 10 \mu\text{m} (\sim 300 \text{ Ghz.Km})$$

Typical Optical fibre

