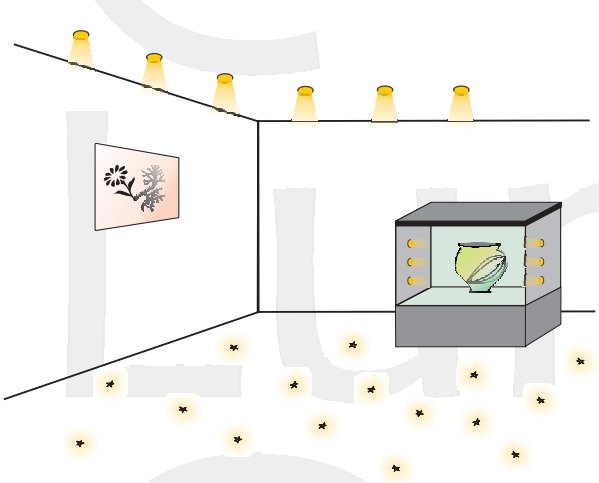
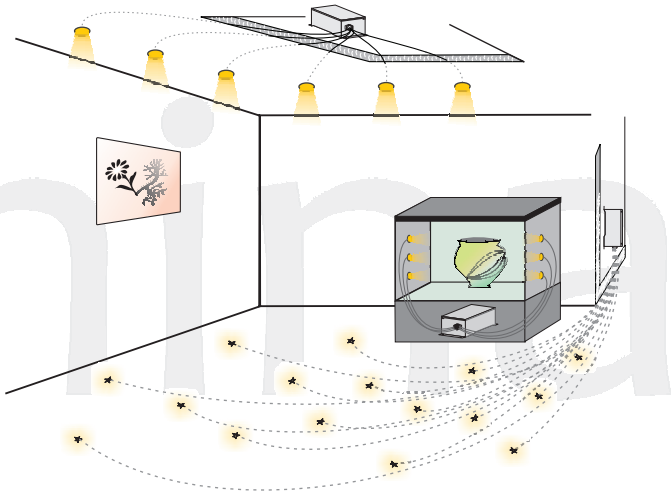
Planning a fiber optic lighting system

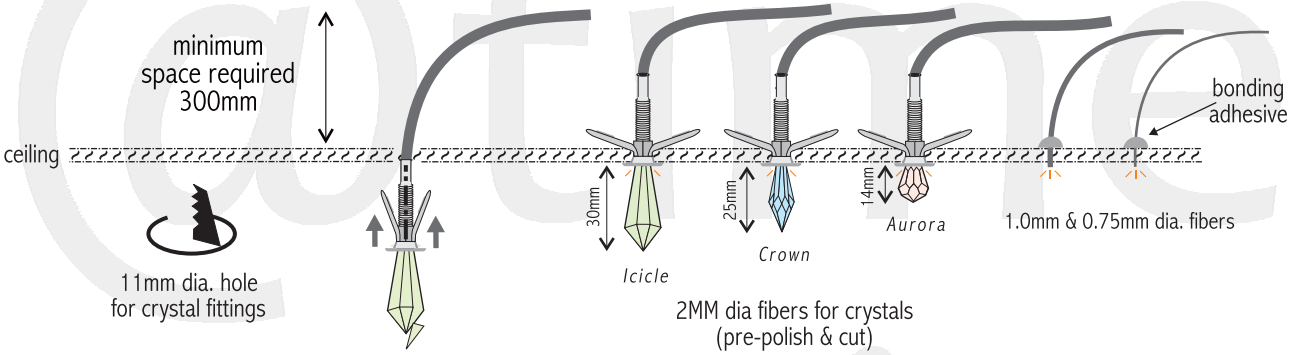
Fiber light system requires a different approach than a traditional lights. There are three principle components - the luminaire, the optical fiber and the output fixture. Optical fibers are either soft glass or PMMA (poly methyl methacrylate) and come with two layers - an inner core surrounded by a teflon cladding. There is an additional third layer of jacket for protection depending on its application i.e. for side light it would be clear jacket while black for end lighting. Bundling individual fibers together is a common practice, with this assembly referred to as bundled fiber. Single core fibers commonly called Solid Core fibers are large diameter fibers. The following points must be carefully considered when designing a fiber light system :

- Desired light ambience required (functional or decorative)
- Color rendering (warm light, cool beam or color changing)
- Luminaire location (accessibility, ventilation and future re-lamping)
- Fiber optic cable paths from light source to end points.
- Size of display item to be illuminated (this determines number of fiber points)
- The finishing of end fitting (if necessary).

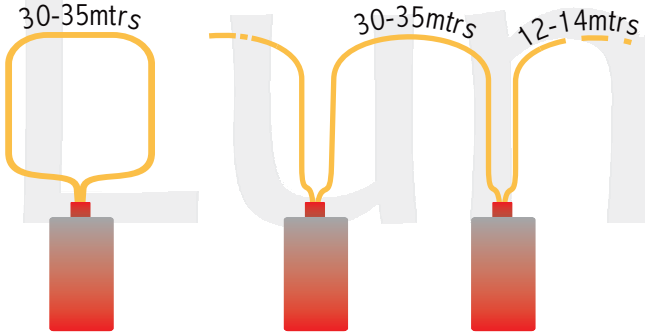




Starfield ceiling



Side-lit application



Note that for sidelight applications, 30 to 35 meters runs are ideal when looped back to a single luminaire. On long runs, multiple luminaires in series are the norm. Wherever possible, sidelight cable should always be looped in and out of the luminaire. They may or may not be synchronized depending on the color effect desired. When using multiple luminaire, cable run should be the same length as possible. This will ensure the cables uniform brightness.

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