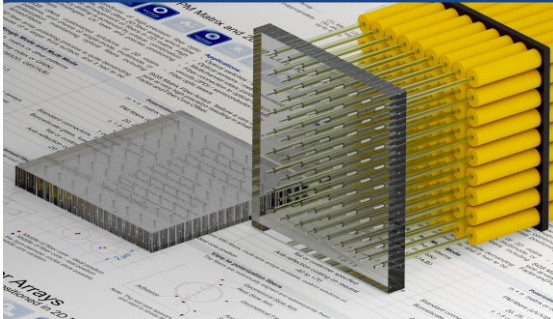




2D Fiber Arrays

Optical Fibers Positioned in 2D Matrix, 2D Matrix with PM and Lensed Fibers



Known as producer of high-precision fiber optic components, SQS offers 2D fiber arrays which allow submicron precision arrangement of fibers in 2D matrix. High accuracy drilling is achieved by unique combination of technologies: UV laser and precise positioning system.

SQS offers customized solutions of 2D matrix patterns, and choice of single-mode, multimode, or polarization maintaining optical fibers including lensed fibers.

2D fiber array assembly may be accommodated to customer requests. Fiber Array may be positioned in a metal flange for easier handling. Optical fibers may be protected by tubing, and terminated by any type of optical connector (single fiber or multifiber).

Applications:

Optical switches / telecommunications, optical sensors / metrology, multichannel rotary joints / medicine, fiber connection to optical integrated circuits (IPD) / semiconductor industry, fiber optic lasers

	Single Mode and Multi-Mode Version	Polarization Maintaining Version
Fiber layout	m × n, hexagonal pattern or others	m × n, hexagonal pattern or others
Fiber type	MM (step index or graded index) SM (ITU-T G.652d, G.657a, b)	PM fibers (UV/VIS/NIR)
Fiber core offset [μm]*	< 1	< 1
Fiber pitch [μm]	x:250um, y:500um for fiber 125/250um x:350um, y:350um for fiber 125/250um	x:250um, y:500um for fiber 125/250um x:350um, y:350um for fiber 125/250um
Angle misalignment [°]	± 1.5 or ± 2.5	± 1.5 or ± 2.5
Extinction ratio [dB]	-	20, 25, 30
Matrix thickness [mm]	1 or 1.5	1 or 1.5
Matrix material	borosilicate glass, fused silica, ceramic	borosilicate glass, fused silica, ceramic
End face finishing	flat (0°) or angled	flat (0°) or angled
Anti-reflection coating on end face	R<0.1%, 400 až 2000nm	R<0.1%, 400 až 2000nm
Output	optical connectors, 1D, 2D or 3D fiber arrays	optical connectors, 1D, 2D or 3D fiber arrays
Operating temperature [°C]	-40 to +85	-20 to 70

* Precise spacing in two dimensions, distance between center of fiber core and ideal position. Parameter includes error drilling, core/clad concentricity and clad non-circularity.

Fiber Core Offset

Edge of 2D fiber array

- Middle of fiber core - ideal position
- Middle of fiber core - real position

Note: the 2μm-diameter circles show possible middle core variation

Angle Misalignment (PM Version)

Edge of 2D fiber array

Note: 0°, 90° or tailored angle of rotation for each channel

2D Fiber Array with Lensed Fiber

Edge of 2D fiber array

- (1), Glass matrix
- (2), Fiber collimator
- (3), Fiber expander
- (4), SM, PM or MM bare fiber

2D Fiber Arrays with 81 SM Fibers, (Tailored Solution)

